

**U S Army Corps  
of Engineers**



**Final  
Quality Management Plan  
For  
EPA Region 8 Superfund Program**

**U.S. Army Corps of Engineers  
Omaha District  
Revision 1, December 19, 2014**

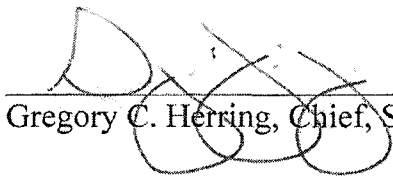
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APPROVALS FOR AGENCY:



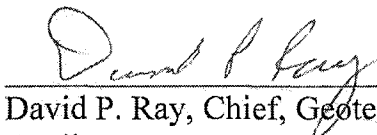
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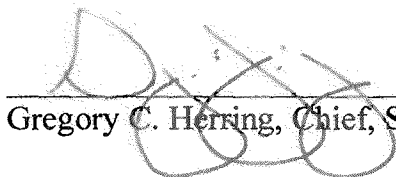
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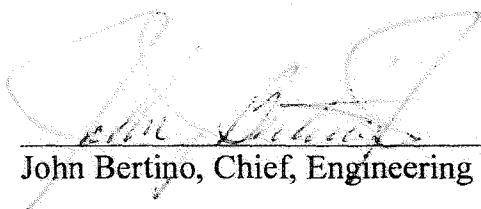
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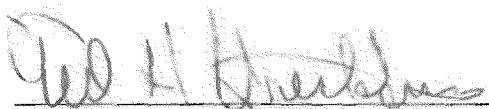
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### Acronyms

ACEIT	Army Corps of Engineers Information Technology team
A/E	Architect / Engineering (services contract)
AFARS	Army Federal Acquisition Requirements
AHA	Activity Hazard Analyses
ANSETS	Analytical Services Tracking System
API	American Petroleum Institute
APP	Accident Prevention Plan
BCOES	Biddability, Constructability, Oper ability, Environmental, and Sustainability
CEFMS	Corps of Engineers Financial Management System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
COR	Contracting Officer Representative
COTS	Commercial off the Shelf (product)
CQC	Contractor Quality Control
CQCP	Contractor Quality Control Plan
CSM	Conceptual Site Model
CX	Center of Expertise
DA	Department of Army
DAWIA	Defense Acquisition Workforce Improvement Act
DCAA	Defense Contract Audit Agency
DE	District Engineer
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
DPM	Deputy Project Manager
DQO	Data Quality Objectives
DrChecks	Design Review and Checking System
EC	Engineering Circular
ED	Engineering Division
EDD	Electronic Data Deliverable
EM	Engineer Manual
EMCX	Environmental and Munitions Center of Expertise
EP	Engineering Pamphlet
ER	Engineering Regulation
ERS	Environmental Remediation Services
EPA	Environmental Protection Agency
GES	Geotechnical Engineering and Sciences Branch
HQDA	Headquarters Department of the Army
HQUSACE	Headquarters of U.S. Army Corps of Engineers
HRO	Human Resources Office
HSP	Health and Safety Plan

HTRW	Hazardous, Toxic, and Radioactive Waste
IA	Interagency Agreement
IDP	Individual Employee Development Plan
IGE	Independent Government Estimate
ITR/T	Independent Technical Reviewers/Teams
ITRC	Interstate Technology and Regulatory Council
LDP	Leadership Development Plan
LTM	Long Term Monitoring
LTMP	Long Term Monitoring Plan
LTRA	Long Term Response Actions
MARC	Multiple Award Remediation Contract
MATOC	Multiple Award Task Order Contract
MFR	Memorandum For Record
MMDC	Military Munitions Design Center
MMRP	Military Munitions Response Program
NRC	Nuclear Regulatory Commission
NSC	National Safety Council
NTP	Notice to Proceed
NWD	Northwestern Division
NWO	Omaha District
O&M	Operation and Maintenance
OPLAN	Omaha District Operations Plan
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
PDT	Project Delivery Teams
PMP	Project Management Plan
PM	Project Manager
PPMD	Planning, Programs and Project Management Division
PRB	Project Review Board
QA	Quality Assurance
QAM	Quality Assurance Manager
QAP	Quality Assurance Plan
QC	Quality Control
QCP	Quality Control Plan
QM	Quality Manager
QMP	Quality Management Plan
QMS	Quality Management System
QMSM	Quality Management System Manual
QMR	Quality Management Representative
RA	Remedial Action
RBC	Regional Business Center
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RE	Resident Engineer



REMG	Resident Engineer Management Guide
RFP	Request for Proposal
RI/FS	Remedial Investigation / Feasibility Study
RIT	Regional Integration Team
RPM	Remedial Project Manager
RSCC	Regional Sample Control Coordinator
SATOC	Single Award Task Order Contract
SB	Small Business
SDVOSB	Small Disadvantaged, Veteran-Owned Small Business
SOW	Scope of Work
SOW	Statement of Work
SSHP	Site Safety and Health Plan
TPP	Technical Project Planning
UFP-QAPP	Uniform Federal Policy - Quality Assurance Project Plan
USACE	U. S. Army Corps of Engineers
USEPA	U. S. Environmental Protection Agency

## 1.0 MANAGEMENT AND ORGANIZATION

This Quality Management Plan (QMP) provides the policy and principals for the quality system applied to environmental, engineering and construction activities, services and products for the U.S. Environmental Protection Agency (EPA) Region 8. It outlines essential Quality System elements for work performed by or for the U.S. Army Corps of Engineers (Corps) Omaha District and its field operating offices in support of the following Interagency Agreements (IAs):

- IA #1 IA DW96954022, Tech Assistance Various Sites. This IA allows multiple Work Assignments under it.
  - Work Authorization 04, IA DW96954022-007, Paula Schmittiel, oversight Upper Animas Watershed
  - Work Authorization 05, IA DW96954022-005, Paula Schmittiel, Vasquez Boulevard/Hwy I-70, CO, Technical Assistance including sampling.
  - Work Authorization 06, IA DW96954022 -006, Joy Jenkins, Gilt Edge Mine, SD, Independent Technical Design Review of the Pre-Final Basis of Design Report for Earthwork Operable Unit 01.
- IA #2 - IA DW96954027; Cinna Vallejos, Libby Asbestos MT, Other Construction/Removal. Removal Actions on various OU's Libby Asbestos. Cinna Vallejos, Rebecca Thomas, Mike Cirian, Christina Progress, Dania Zinner, and Liz Fagan.
- IA #3 - IA DW96953911 Remedial Action, Paula Schmittiel; Construction, Vasquez Boulevard/Hwy I-70, CO. includes remedial action of properties with lead and arsenic impacted soil.
- IA # 4 – IA DW9695851, Cinna Vallejos and Christina Progress, Libby Asbestos MT, OU3 Remedial Investigation and Removal Actions.
- IA # 5 - IA DW9695855, Dania Zinner, Libby Asbestos MT, OU6 Oversight of Remedial Investigations/Feasibility Study (RI/FS) & Record of Decision (ROD).
- IA #6 IA DW9695856901, Joy Jenkins, Operable Unit 2 management and treatment of acid rock drainage, Gilt Edge Mine, Lead, SD.

This QMP also provides quality management system requirements for future IAs under the Superfund Program between USACE Omaha District and EPA Region 8. Corps services involving the generation, collection, or use of environmental data are subject to the quality requirements herein as indicated in the terms and conditions of the IAs.

## 1.1 U.S. Army Corps of Engineers Mission and Vision:

The mission and vision statements for the U. S. Army Corps of Engineers (Corps) are as follows:

*“Provide vital public engineering services in peace and war to strengthen our Nation’s security energize the economy, and reduce risks from disasters.”*

*“A GREAT engineering force of highly disciplined people working with our partners through disciplined thought and action to deliver innovative and sustainable solutions to the Nation’s engineering challenges.”*

The Omaha District Mission specifies that Omaha District will serve the Armed Forces and the Nation in support of civil, military, and environmental missions. Our three-quarters century history of distinguished service is marked by engineering excellence, outstanding technical support, and multi-disciplinary services. Omaha District delivers quality, timely products and services (Omaha District Operations Plan-OPLAN, FY2014-16).

Omaha District’s Vision is to be the lead district in execution, innovation, and disciplined action for Corps, working in concert within the region and across the Corps, to deliver to this nation premier engineering services by a well organized, professional and highly trained workforce able to provide support any time, any place.

The Omaha District OPLAN goals and objectives are congruent with the Corps and Northwestern Division goals, objectives, mission, and vision. The Omaha District is responsible for the execution of three major missions, however the mission that is apropos to this QMP is:

- ☐ Hazardous, toxic, and radioactive waste cleanup
- ☐ Restoring the environment for the U.S. Environmental Protection Agency and the Department of Defense (DOD) at sites throughout the United States.

Corps environmental policies are outlined in the Environmental Operating Principles in 2002, and remain a vital to our mission. The Quality Management principles are outlined in ER 1110-1-12, *Quality Management*, and include

- ☐ A customer focused product and environment,
- ☐ Continuous process improvement,
- ☐ Empowerment of people.

All of which contribute to Corps producing products and services that fully meet customer's expectations of quality, timeliness and cost effectiveness, within the bounds of legal responsibility. An acceptable level of quality does not imply perfection; however, there should be no compromise of functional, health, or safety requirements. Data quality management procedures must be formulated to ensure harmony with the Corps Strategic vision and our customer's expectations, and should be executed in concert with activities presented in other U.S. Environmental Protection Agency (EPA), Department of Defense (DOD), Department of Army (DA), and Corps guidance.

In the context of the mission, vision and policy statements, the Omaha District provides our full range of capabilities in support of EPA Region 8's Superfund Program. This covers all phases of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process from initial site assessment through the operation and maintenance of facilities, to Five-Year Reviews, or Optimization Studies and Implementation. The support is provided through a combination of in-house staff, other Corps of Engineers offices, and contractors.

## **1.2 U.S. Army Corps of Engineers Organization:**

The U.S. Army Corps of Engineers is organizationally comprised of a Headquarters office, eight Division and 41 District offices, six engineering and research laboratories, numerous technical Centers of Expertise (see <http://www.Corps.army.mil/About/CentersofExpertise.aspx>), the 249<sup>th</sup> Engineering Battalion, and the 412<sup>th</sup> and 416<sup>th</sup> Engineer Reserve Commands. Corps' environmental mission is supported by several of the Divisions (aka Regional Business Centers (RBC)) and Districts nationwide. The Districts work with the RBCs through Communities of Practice, Regional Integration Teams (RIT), and the Centers of Expertise. Corps' Quality Management System (QMS) is the repository for Corps' Key Business Processes and is used to distribute and leverage up-to-date knowledge throughout the organization, including Quality System components. The organization chart depicting those offices within Omaha District (NWO) that support the EPA Superfund work is shown on Attachment 1. The functions and responsibilities of the Corps Omaha District primary offices are described below.

**Planning, Programs and Project Management Division:** The Planning, Programs and Project Management (PPPMD) Division is responsible for the execution and overall success of services performed and products produced by the Omaha District, by other Corps support staff, and/or through contractors. Major PPPMD branches include Special Projects, Environmental Remediation, Military, Civil Works, and Programs Management and Planning.

**Special Projects Branch:** The program manager supporting Region 8's Superfund Program is assigned to the Special Projects Branch. This office is responsible for the overall execution of the program in accordance with EPA's

program and project specific goals and objectives. Project management support will be provided primarily by the Special Projects Branch.

**Environmental Remediation Branch:** Project management support may also be provided by the Environmental Remediation Branch.

**Engineering Division:** The Engineering Division works with PPPMD to ensure the overall quality of engineering and scientific services and products produced by the Omaha District meet customer (EPA in this case) requirements, whether done by Corps support staff, and/or through contractors. Major Engineering Division Branches include Geotechnical Engineering & Sciences, Hydrologic Engineering, Protective Design Center, Design, Transportation Systems Center and Cost and General Engineering.

**Geotechnical Engineering and Sciences (GES) Branch:** Responsible for the technical aspects of a project; and the preparation of accurate and timely technical products for the EPA. Internal Corps staff are assigned based on the execution strategy, as well as the project scope, technical complexity and discipline-specific needs of the project. The Project Delivery Team (PDT) has overall responsibility to assure the technical adequacy, accuracy, quality, and timeliness of the product. PDT Members are responsible for product quality in their respective areas of responsibility. For in-house project's quality control practices within the Engineering Division, the work follows quality control procedures outlined in QMS Process 08501. For products developed by contractors, the contractor completes a quality control review of the product prior to submitting the product to the Corps. NWO technical staff subsequently performs a quality assurance review of the contractor's product. When issues impact the project's quality, the PDT shall notify the PM, the Superfund Program Manager, and the Corps Omaha District Superfund Quality Assurance Manager, as needed. The Chief of the GES Branch serves as the District's Superfund Quality Assurance Manager (QAM) for Environmental Work for Superfund in Region 8. The Superfund QAM works with QMS Functional Leaders and QMS Process Owners to confirm that the Quality Control (QC) procedures are done in accordance with applicable QMS processes, as well as Corps regulations, policy and guidance. The Superfund QAM reports directly to the Chief of Engineering Division, with direct access to the Omaha District Commander, if necessary.

**Contracting Division:** The Contracting Division is responsible for leading the procurement of supplies and services (engineering, environmental, construction, etc.) in support of all of the Omaha District's mission areas and in accordance with all applicable procurement regulations. A contract specialist from this office is assigned to each PDT requiring procurement services.

The Contracting Division's contract specialist works with the PM and PDT to provide a quality product; assembling user requirements into complete contractual documents in accordance with the various Federal Acquisition Regulations (FAR) and existing contract policy and guidance. Training of the contracting workforce in accordance with the Defense Acquisition Workforce Improvement Act (DAWIA) is of paramount importance. At a minimum, the Contracting Division follows the management controls outlined in the Army Federal Acquisition Regulation Supplement (AFARS) and these controls are used as the baseline for ensuring quality processes are in place.

**Construction Division:** The Construction Division includes a network of Area Offices (AO) that are responsible for contract management to include field and contract QA oversight during the construction activities. Although much of the investigative environmental work for Superfund may not require construction support, Construction Division has become an integral PDT member during the Remedial Action (RA) phases of environmental work. Depending on the project-specific expertise needed, the local construction district or the Rapid Response construction personnel can provide oversight responsibilities on time critical construction projects or HTRW removal actions. Construction personnel coordinate project work/scope objectives with Resident Engineer, Project Managers and other Project Engineers. They are available to assist in contract/task order negotiations, review plans, provide direct support of on-site construction or removal action efforts and perform contract administration duties for overall contract/task order management. Construction Control Representatives may also be assigned to Superfund projects, and work at the direction of the Project Engineer. The Construction Control Representatives work consists primarily of time sensitive environmental projects but may also include clean construction and fuels projects. Duties include safety compliance, Quality Assurance, and assessment of the performance of work in accordance with approved work plans, safety plans and sampling plans.

**Northwestern Division, Environmental and Munitions (EM) Center of Expertise, and Corps of Engineers - Headquarters:** These offices are responsible for regularly reviewing and assessing the District's environmental programs. They are available to provide technical support, they promote professionalism, application of uniform technical criteria, the use of new technologies and help enhance quality and cost effectiveness among the Omaha District programs. These reviews include Division attendance at monthly District Project Review Boards, as well as an annual review of the District's programs and processes.

**1.2.1 Contract Support of Activities** - The Omaha District executes the majority of its work in support of the Superfund Program through contracts. Federal and Army Acquisition regulations define the processes the District follows to assure the technical capability of contractors used to supplement our support to EPA and other customers. Only senior technical staff participates in

the selection of contractors to ensure that contractors are qualified to perform assigned work. Attachment 2 provides a list of the contract types used to complete projects in Region 8. The contractors generally provide logistical support and perform investigative fieldwork, obtain any environmental samples, coordinate field and laboratory analyses, utilize the information to make decisions, and design, construct and operate environmental technologies. These firms are executing the work in accordance with a scope of work, work plans and/or plans and specifications that have been prepared by and approved by the Omaha District PDT working closely with EPA's Remedial Project Manager (RPM).

As part of each contract procured by the District, as well as other Corps contracts used to support Omaha District efforts, the contractor is obliged to demonstrate a Quality Control process for their organization. The process is captured in a Contractor Quality Control Plan (CQCP) that is developed and executed by the Contractor. The CQCP is the Contractor's quality management plan for executing the work under each task order. The CQCP describes the way in which the Contractor will produce the deliverables, and the step-by-step approach that will be taken to ensure the quality of the engineering and design services and the products derived from those services. The Project Manager and PDT support staff review and approve project CQCP along with the Project Management Plan (PMP) and project-specific planning documents.

For projects involving data activities, the contractor prepares a Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) in accordance with OSWER Directive 9272.0-17, June 7, 2005, Implementation of the Uniform Federal Policy for Quality Assurance Project Plans (Attachment 3), and other work plans as necessary. The UFP-QAPP documents the technical and quality control aspects of a project including planning, sampling and analytical implementation, data assessment, and necessary corrective actions. UFP-QAPP provides project-level guidance for the contractor to engage project stakeholders in the systematic planning process to determine project management and objectives; data and measurements needed, field tasks, and data acquisition; assessment and oversight; data review. The approved UFP-QAPP's standard for quality and process is then used during assessment activities to verify the performance meets project objectives. The UFP-QAPP formalizes the results of the technical project planning meetings, and specifically identifies the roles of all project stakeholders, outlines the project decision-making and goals of the effort, and the acquisition and use of environmental data. UFP-QAPPs prepared for the Superfund program are generally project specific, but may be comprehensive in nature, if supported by project-specific addendums. When the UFP-QAPP is prepared by a contractor, it is reviewed by the Omaha District PDT and those comments are used to revise the document. The Omaha District PDT review may be on behalf of the EPA; but the UFP-QAPP will be submitted to EPA Region 8 for review and approval before work involving the collection, production, or use of environmental data may begin. Additional detail on EPA Region 8 review and approval is presented in QMP section 2.1.3.

**1.2.2 Quality Assurance Policy** – Omaha District goal is to develop and implement QA and QC practices for each project/product/service that is compliant with USACE regulations, policy and guidance, and recently developed Omaha District QMS Processes. These resources are specific to the application, and ensure that services and products meet the requirements agreed upon by the customer consistent with appropriate laws, policies and technical criteria. Typically all applicable components of the project are identified in a project specific PMP. The Omaha District makes Quality Management an integral part of its way of doing business to support the Corps Strategic Vision of providing a quality service/product to satisfy the customer. Adherence to quality principles stated herein and in established engineering regulations, policy, guidance, and QMS processes are required of each individual, office, and functional group within the Omaha District. These practices are consistent with the prescribed policies of the Corps of Engineers Northwestern Division (NWD) and national headquarters. Broad reaching Engineer Regulations, Manuals, Circulars, Pamphlets and Technical Letters are the foundation of the technical standards for the Corps nationally.

### **1.3 Quality System Roles, Responsibilities, and Authorities:**

**1.3.1 Key Positions** - The responsibilities, authority and independence of key positions associated with the Omaha District management of the Quality System are summarized in this section.

*District Commander* is responsible for the successful execution of all of the District's missions as the Omaha District Engineer (DE). The Commander ensures through senior staff that the appropriate people, processes and systems are in place and being utilized such that a quality product is delivered to all of the District's customers (EPA in this case).

*Chief, Planning, Programs and Project Management Division (PPPMD)* has overall responsibility for Program/Project execution. The PPPMD Chief working through supervisory staff and the Superfund Program Manager will assign the project manager and assures that all work is being carried out in accordance with the Project Management Business Process and this QMP. This position is the civilian deputy to the Omaha District Commander, and is the Deputy Project Manager (DPM).

*Chief, Special Projects Branch* serves to ensure the Omaha District's support to EPA's Superfund Program. The Chief of Special Projects Branch assigns Project Managers in consultation with the Superfund Program Manager and Chief, Planning/Programs/Project Management Division to support the EPA Region 8 work. Also insures that the projects are being managed in accordance with this QMP and the Project Management Business Process, and approves the Superfund Program Project Management Plan.



*Superfund Program Manager* serves as the primary point of contact with EPA Region 8 and ensures that the Omaha District's support to the Superfund program meets the needs and expectations of Region 8. Responsible for overall management and integration of assigned Superfund Environmental or Special Projects and Programs. Generates or ensures the Project Managers write the Project Management Plans. Executes the program and projects in accordance with the PMP and this QMP. Monitors the progress of the program, initiates the annual QMP update and ensures that nonconformance issues are addressed promptly. The Superfund Program Manager is responsible for reporting quality issues through proper channels to the DPM, and upward to the Omaha District Commander as necessary.

*Project Manager (PM)*: The PM is considered an extension of the Commander; the leader of the PDT assembled to execute a project and is responsible for the following:

- ☐ Project management responsibilities include project scope, cost, schedule, and quality as defined by the authorities/customer/etc. - includes direct management of the planning, acquisition, design and construction processes by utilizing contract services or in-house labor forces.
- ☐ Successful completion and delivery of assigned projects within established costs, schedules and quality parameters.
- ☐ Documenting and communicating customer (EPA) expectations, and focusing the team on the customer's needs and expectations.
- ☐ Authors the Project Management Plan and maintains updates; distributes drafts for review and approval; and maintains current version for release.
- ☐ Executes the program and projects in accordance with the PMP and this QMP. Coordinates the establishment of consensus quality management objectives at a project level that supports the implementation of this QMP and the Project Management Plan, in concert with the project delivery team.
- ☐ Assure communication and coordination between functional divisions to effect timely execution. Utilizing the appropriate expertise needed for the project delivery team to determine the procedures necessary (such as technical project planning and/or independent technical / QA review) to achieve the target level of quality.
- ☐ Manage assigned work utilizing established business processes and systems so as to ensuring that the customer endorses all quality objectives included in this QMP and the Project Management Plan.
- ☐ Understanding the customer's role in the project success; the Project Manager's relationship with the customer (EPA's RPM) is pivotal to providing quality service.

- Working with the customer to plan the project scope and customer requirements, to determine customer needs, and refines those requirements in light of safety, fiscal, schedule, and other constraints; works with the PDT to keep this focus and consider the cost/benefit of all quality improvements.
- Provides the approval signature for project UFP-QAPPs on behalf of Corps of Engineers Omaha District and PDT.
- Accomplish timely and accurate project reporting. Keeps the Superfund Program Manager, the PDT, QAM and functional chiefs apprised of customer's expectations, support needs and status of project's progress, and assists with resolution of problems identified.

*Chief, Engineering Division (ED)* is responsible for the quality of engineering services and products produced in-house or through oversight of contractors. The District's ED Chief through supervisory staff, oversees the execution of work performed within Engineering Division is compliant with Corps regulations, policy, guidance and the Omaha District Quality Management System (QMS) processes. Responsibilities and the roles of all staff within Engineering Division are independent of PPPMD. The ED Chief also monitors the availability of technical resources through subordinate supervisors.

*Chief, Geotechnical Engineering and Sciences Branch* serves as the District's Quality Assurance Manager (QAM) for Superfund Work. The Superfund QAM roles are independent of PPPMD; providing oversight of the PDTs and personnel supporting execution of the work, and the collection and use of the data. The Superfund QAM executes this QMP through subordinate staff supervisors, project delivery teams and technical reviewers. The Superfund QAM also monitors work performance and assures the quality of the project-specific products and services. The QAM or designee may provide technical support and approval signature on project specific WP, SAP, QAPP, or UFP-QAPPs that involve environmental data activities. The Superfund QAM reports problems with quality and nonconformance issues directly to the Chief of Engineering Division, and upward to the Omaha District Commander as necessary. The Superfund QAM is responsible for working with Superfund Program Manager and PMs to assign appropriate technical staff for a PDT that meets project goals/requirements. As necessary, obtains additional technical support for projects using other district staff or contracts available to the Omaha District, including those of other Corps districts, if appropriate. The Superfund QAM along with other Branch and Section Chiefs teach, coach, mentor and arrange training for staff so that they are technically competent to complete project specific tasks. The Superfund QAM has stop work authority for in-house work or through the Contracting Officer Representative for contracted work when there is cause to believe that a quality control failure, a safety deficiency or nonconformance has occurred.

*Contracting Officers* (KO) and Contracting Officer Representatives (COR) conduct final quality assurance reviews of all contract documents prior to contract award. The KO serves as the primary governmental authority for contract award and deciding corrective actions necessary based on poor performance. The COR works with the KO and is authorized to take action to verify that the contractor performs the technical requirements of the contract in accordance with the contract terms, conditions and specifications. Specific emphasis should be placed on the quality provisions, for both adherence to the contract provisions and to the contractor's own quality control program. The COR performs, or cause to be performed, inspections necessary to verify that the contractor has corrected all deficiencies. Perform acceptance for the Government of services performed under a contract. The COR maintains liaison and direct communications with the contractor, and monitor the contractor's performance. The COR notifies the contractor of deficiencies observed during surveillance and directs appropriate action to effect correction. Record and report to the contracting officer (KO) incidents of faulty or nonconforming work, delays or problems. The KO or COR work with the PDT to establish and ensure the effectiveness of the quality control process, achieving both customer satisfaction, compliance with the contract award, and in the best interest of the government.

*Project Delivery Team* members include the PM and technical staff (engineers, scientists, real estate professionals, support staff and/or other specialists) as a group of technical specialists needed to achieve the customers goals for a project. The Project Delivery Team (PDT) may be only in-house staff or a combination of in-house and contractor personnel. The PDT is responsible for:

- ☐ Producing and delivering a quality project.
- ☐ Performing an active role to ensure the customer's quality objectives are clearly articulated and that the customer understands the essential professional standards, laws, and codes that must be incorporated into the project activities.
- ☐ Monitoring the quality of contractor work performance and execution of in-house work that is compliant with Corps engineering regulations, policy, guidance and applicable QMS Processes.
- ☐ Keeping the commitments for completion of their portion of the project, as documented in the Project Management Plan.

#### **1.4 Internal Coordination of Quality Assurance Activities:**

**1.4.1 Technical Project Planning Team Meetings** - Technical project planning team is a broad term used to include the EPA as the primary customer and stakeholder; with secondary stakeholders being the state regulatory agency, other Federal resource agencies, and may also include representatives of the public. Customer requirements are identified in initial meetings between the EPA RPM and their support staff and the Omaha District's Project Delivery Team.

The technical and quality requirements are discussed and identified in the approved PMP, with EPA regulations/policy/guidance included in the specifications and scopes of work of contractors who are supporting the project. Additional requirements are identified during the course of a project through frequent interaction between the EPA RPM and the Omaha District/contractor staff performing the work. The Omaha District's PM is the focal point for communication between the District PDT and EPA. The PMP is the document that will identify customer specifications and objectives and is the vehicle through which senior management at the Omaha District is made aware of these items. By their approval of the plan, they endorse the approach for meeting them. Changes in project requirements (schedule, funding, and level of effort) are captured in revisions to the PMP, with these revisions being approved by all parties.

**1.4.2 UFP-QAPP and QMS Tools** - A Uniform Federal Policy - Quality Assurance Project Plan (UFP-QAPP) is prepared for projects that are performing environmental data activities in accordance with EPA requirements. The project UFP QAPP is intended to capture the entire project planning process, integrating and documenting the technical and quality control aspects of planning, implementation, assessment, and corrective actions.

EPA Region 8 must review and approve UFP-QAPPs before work involving the collection, production, or use of environmental data may begin. EPA approval is required prior to work being performed. District staff provides oversight of any contractor activities to insure conformance with the UFP-QAPP. Frequent meetings are held between the Omaha District's project team and EPA to review data and work products, and overall progress of the project. Direct feedback from EPA, along with the Omaha District's oversight of activities, is the approach used for assuring that the customer's specifications are being met. Additionally, EPA and Corps engineering regulations, policies, guidance and QMS Processes provide specific details for project execution in accordance with technical standards and Corps Key Business Processes.

**1.4.3 PM and PDT Teaming** - Corps PMs work within and across Corps Districts and Division boundaries to integrate individual strengths together in order to execute a program and projects that meets the customer needs. It is the responsibility of the Project Manager, in discussion with functional section level supervisors and/or the Superfund QA Manager, to coordinate and enlist the support of appropriate technical staff/team members that establishes a PDT. Section Chiefs making PDT assignments assure that the training and professional experience and qualifications of reviewers and team members is sufficient to provide sound technical service/expertise, generate excellent work products and/or provide thorough technical review. Each Corps PDT staff member establishes project priorities and provides necessary resources to meet the expectations of and commitments to the customer. The PM ensures that the direction and effort of the PDT are unified, focused and coordinated. Each PDT member keeps their respective organizational management informed at all times, especially of high priority or sensitive project

issues. PDTs members work together to deliver quality work products. The Project Delivery Team members establish schedules for work completion, execute the required reviews, respond to comments for specific technical products/services, and obtain necessary certification signatures. Schedule and cost will be coordinated with the appropriate branch and section chiefs to ensure the availability of resources. The responsibility for quality lies with each individual charged with producing a product –i.e., done right the first time up through the entire management chain to include the most senior leadership. Reviews established by QMS Process 08501 are followed for all in-house work executed by Engineering Division.

**1.4.4 Corps Reviewer Roles** - A secondary cross-functional review is accomplished for all Corps projects. For projects that are contracted, the Corps PDT performs the independent QA review, in addition to the Contractor's QC review. For work done in-house by Engineering Division, QMS 08501 identifies up to five levels of review that are executed, as needed. Mandatory reviews are based on the type of work and products generated. The Design Reviews include Peer Review, PDT Interdisciplinary, Plan-in-Hand, Supervisory Interdisciplinary, BCOES (Biddability, Constructability, Operability Environmental, and Sustainability). All reviews are conducted by personnel that work independently from the project PDT members. For politically sensitive and high-risk projects, Headquarters and/or National Centers of Expertise (Technical Expert) review can occur when the need is identified for those significant projects.

Members of the Geotechnical Engineering and Sciences Branch and other Corps elements may serve as review staff if they have not provided the service or participated in the product preparation. As Subject Matter Experts, individuals performing reviews have specific training, professional registration, and technical certifications necessary to perform the work.

Reviewers will examine the product/service for technical adequacy and appropriateness of the effort required. They will also check for compliance with current Federal, State and local environmental regulations and all applicable engineering regulations, guidance, standards, and policy. Seamless discussions and review, consisting of continual interaction of the PDT with the reviewers, will be conducted at various stages of the product development/preparation and revisions. An end-products' review will be conducted and documented at the completion of work product development through product approval certification and signatures.

**1.4.5 QA Oversight / Audits / Inspections** - The Omaha District will be responsible for QA for all products and services provided by our contractors in accordance with this QMP and each project's Project Management Plan. This process works in collaboration with each contractor's quality control program. All reviewers will have specific training, professional registration, or technical certifications necessary to perform the work. Performance standards for QA personnel and their respective annual accomplishments focus heavily on QA duties performed as well as the quality of those QA duties.

There are other types of selective QA audits/reviews. Some audits will be programmatic, addressing the overall environmental program. There will also be audits of specific projects, tasks or phases of study/investigation and/or remediation. Audits will assure that all products and/or services, including those prepared by and for the District, comply with established regulations, policies, procedures, and guidance. These audits may be performed by the Omaha District Auditor or other district or Northwestern Division staff, or other Corps elements. The audit team consists of personnel with appropriate expertise and experience to review the project and/or program. Individuals on the audit team will be independent of the program and/or project team. Reports of these audits and resolution of findings are reported back through the functional executing elements to management and team personnel.

**1.4.6 Dispute Resolution** – As the various review comments are addressed by the PDT, a clear record of these resolutions is maintained.. The PM and PDT will respond to all comments and incorporate appropriate changes. The reviewers will accept or respond with follow-up comments as required to fully address the response. Resolution should be reached as quickly as possible, with support from appropriate supervisory staff when time is limited or when timeliness is critical. The dispute resolution process will not be allowed to delay the timely delivery or quality of the project information or work products to EPA. Any issues that the PM and PDT and reviewers cannot resolve will be referred to the Superfund QA Manager and Superfund Program Manager for a final decision if necessary. The majority of comments, recommendations and issues can be addressed at the project level (Omaha District Project Manager with PDT and reviewers). The Superfund Program Manager and Superfund QAM, and even more senior management (Chief of Engineering Division and DPM) can be engaged in the resolution of significant issues only when they are beyond the ability of the project staff to address.

When disputes involve Corps contractors, the Project Manager will lead PDT discussions with the contractor in order to reach resolution on a matter following processes in section 4.2, 9.5, and 9.7. The COR is the ultimate authority on the impact the dispute has on the contract award and corrective actions necessary. The Program Manager is responsible for the resolution of all issues to the satisfaction of the customer. The EPA RPM controls the distribution of or access to information to other entities (state, public, etc.).

## **1.5 Management Review of Quality System:**

Individuals are held accountable to their PDT to provide quality products. So the feedback and results of the quality systems are handled through a variety of mechanisms including verbal as well as formal written feedback, comments and suggestions. Team feedback is typically verbal with more complicated projects perhaps requiring formal minutes of team sessions.

PDT briefings are held between Engineering and PM Branches on an as-needed basis, e.g., monthly, to evaluate weaknesses in the execution of the mission. Topics routinely addressed include any project schedule slippages, review comments rework, Cost Growth, Contract Modification / Amendments, etc. The branch chief, or their designee, will investigate the causes of the weakness and upward report issues if warranted. Other less regular meetings of both project staff and leaders are organized at regional and/or national levels where lessons learned about specific programs and projects are shared with others to foster process improvement. This tiered approach to management assessment and reporting results is consistent with the approach to the conduct of the work and the concern for the quality of the service and product to the customer.

**1.5.1 Biddability, Constructability, Operability, Environmental and Sustainability (BCOES ) Review** - The BCOES review applies to personnel reviewing construction documents for new contracts or Task Orders, and does not routinely apply to Superfund work. A back check review to verify that action comments have been included in the bid documents will be performed prior to BCOES certification. The Engineering Division Chief signs the BCOES and other certifications.

**1.5.2 Superfund QAM / Superfund Program Manager Oversight** – The Superfund QAM and Superfund Program Manager’s oversight helps provide internal feedback and harmonization of procedures across projects and PMs. The Superfund QAM and Superfund Program Manager also perform an independent monitoring of projects to ensure execution consistency, and accurate permanent project records.

**1.5.3 Commander Project Review Boards (PRB)** – The Omaha District leadership assures that Corps meets its goal of delivering quality engineering and environmental services and products, in accordance with applicable design standards and criteria, on schedule, and within an efficient budget that fully meets the prescribed requirements and expectations of our sponsors and customers. This involves the use of a tiered and risk based review process that evolves at the working staff level through the management chain and includes the organizational hierarchy as well. All projects are reviewed on a regular basis at the District monthly Project Review Board (PRB). The monthly PRB requires written reporting although there is much verbal discussion about projects, their successes and issues, summarized in writing with noteworthy points captured for upward reporting.

**1.5.4 Corps Division / Program Audits** - Projects and Programs are also regularly reviewed and assessed by Corps Divisions and National Headquarters and/or at National Centers of Expertise (CX). These reviews include a management review of the District's programs and processes. Management assesses the effectiveness of programs and processes, identifies potential problems,

resolves and remedies circumstances before problems occur, recommends modification of processes to improve products, verifies that the independent review processes are in place, and strengthen programs. The annual Division review is a more formalized audit. A set number of projects are reviewed with a formal entrance brief between the audit team and district senior management. The audit follows with a formal exit brief occurring via written feedback that is presented later to the team and management. The feedback includes positive comments and areas where performance needs attention. These are provided to the commander who delegates the corrective actions to address comments. Issues are revisited periodically to see if they have been addressed.



## **2.0 QUALITY SYSTEM COMPONENTS**

### **2.1 Documentation of the Quality System:**

The Omaha District, the Northwestern Division establish and implement quality management practices on various projects as outlined within Corps regulations, policy, and guidance. In addition, Corps QMS processes are being developed for use at the Omaha District that outline QA and QC procedures for various programs and projects execution. The EPA and Corps regulations, policy, and guidance that is applied to projects, ensures that technical work products meet the agreed upon requirements of the customer and the appropriate laws, policies, and technical criteria. QA involves those planned and systematic actions necessary to provide adequate confidence that the products or service activities are performed satisfactorily and safely. QC is an integral part of the project execution and work products development and review. Overall QC procedures are comprised of those actions necessary to control and verify that activities and resulting products or services meet or exceed established requirements. Corps performs both QC and QA activities in the delivery of products and services to our customers and partners. Quality documents, including this Superfund QMP are based on the guidance established in ANSI/ASQC E4-2004, EPA CIO 2105.0; EPA Quality Manual CIO 2105-P-01-0; EPA Order CIO 2106; and EPA Procedure for Quality CIO 2106-P-01.0 as applicable EPA QA policy and requirements. See <http://www.epa.gov/quality/> for more information.

**2.1.1 Quality Management Plans** - The Omaha District is establishing this QMP to prescribe the policy and procedures for the execution of Superfund project's execution and quality management activities. The plan is written by senior technical staff within GES Branch, and internally reviewed by the Superfund QAM, the Superfund Program Manager, and the Engineering Division upper management. In accordance with EPA policy, the QMP will be reviewed annually, updating accordingly, by fully documenting the process. The QMP will be updated every five years or as needed when a significant change occurs. Significant changes include major changes in mission, organization and authorities.

The QMP review provides the SF Program Manager, Superfund QAM, senior management and staff the opportunity to clarify roles and responsibilities, address problem areas, and institutionalize improvements. This is followed by a review / approval by EPA Region 8. The Superfund Program Manager will initiate the QMP update annually; coordinating with the Superfund QAM who shares in the responsibility that this QMP update is done in a timely manner. The Superfund Program Manager and the Superfund QAM will alternate the assignment of the task to perform an internal QMP review to appropriate management / technical staff. The Superfund Program Manager will also initiate an update to the QMP when significant

changes to the organization or quality system have occurred. Revised QMPs will be submitted to EPA Region 8 for review and approval along with the completed crosswalk.

Project-specific QMPs will be developed for work done in-house by the Engineering Division following Omaha District QMS Process 08501, Engineering Division Quality Control Process for In-House Projects / Products. The In-House design PMP contains the Quality Management Plan (QMP), which consists of the Design Quality Control Plan (DQCP) and Quality Assurance Plan (QAP). Specifically, the in house designs DQCP is a part of the QMP – as an attachment to the project management plan, that is authored by government staff, not contractors. In-house projects DQCPs are reviewed within Engineering Division. Internal approval of in-house project DQCPs are performed by the Branch Chief of the Lead Technical Organization; while the Programmatic DQCPs are the responsibility of the Engineering Division Branch Chief Quality Management Board. In-house work programmatic and project QMPs and DQCPs will be reviewed annually and updated accordingly. For projects that will result in a construction, contract a Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Review is required and conducted by government staff. For Contractors performing design work, USACE may place a requirement within the contract to have the Contractor prepare a Site Specific Quality Management Plan. Contracted project's QMP is approved with the PMP. PMPs and all associated documents (QMP, QAP, QCP, DQCP, etc.) are living documents, and are generally reviewed annually and updated accordingly and when project conditions change (e.g., new PDT or project planning team members, scope or processes).

**2.1.2 Quality Assurance Plans** – As a part of the QMP, the Quality Assurance Plan (QAP) is developed for contracts administered by the Corps, to assure that the contractor's quality control system (and associated QC Plan) is functioning as stated in the plan. The QAP includes an outline of testing frequencies for engineering, construction, and analytical products and services by Corps personnel only. Execution of the QAP is an inherently governmental function, and shall not be delegated outside of the government.

**2.1.3 Quality Assurance Project Plans** - The UFP-QAPP integrates technical and quality control aspects of a project that involve environmental data activities. It includes all aspects of the planning, implementation, assessment, and corrective actions. UFP-QAPP provides project-level guidance for the documentation of project stakeholder discussions and decisions related to project data quality objectives; data and measurements needed, field tasks, and data acquisition; assessment and oversight; data review. The UFP-QAPP must provide information in sufficient detail (regarding sample design, sample types, sample locations, interpretation scenarios, any field contingencies, sampling methodologies, and other sample handling techniques) to set the standard for execution. A UFP-QAPP can only be approved if it contains all of the information required by EPA QA/R-5 and as described in the UFP-QAPP Policy. The approved UFP-QAPP's standard for quality and process is then used during assessment activities to verify the

performance meets project objectives. Data verification and validation procedures are also detailed within the UFP-QAPP. The UFP-QAPP formalizes the results of the technical project planning meetings, and specifically identifies the roles of all project stakeholders, outlines the project decision-making and goals of the effort, and the acquisition and use of environmental data. UFP-QAPPs prepared for the Superfund program are generally project specific, but may be comprehensive in nature, if supported by project-specific addendums. If the UFP-QAPP format used has both a comprehensive QAPP and project-specific QAPP addendums, revisions of either require the submission of both as a single UFP-QAPP to provide all required information for review. All documents must be reviewed and approved as a single UFP-QAPP. Additionally, if the scope of effort requires that an approved UFP-QAPP be expanded to include additional procedures (e.g. a new project described in a new project-specific addendum), the combined document set (both comprehensive and addendums) must be reviewed following the UFP-QAPP revision procedure described below.

When the UFP-QAPP is prepared by a contractor, it is reviewed by the Omaha District PDT and those comments are used to revise the document. The Omaha District PDT review may be on behalf of the EPA; but the UFP-QAPP will be submitted to EPA Region 8 for review and approval before work involving the collection, production, or use of environmental data may begin. EPA Region 8 QA Manager, or delegated QA approving officer, is the approval authority for UFP-QAPPs developed under interagency agreements. Quality Assurance Project Plans are prepared in accordance with OSWER Directive 9272.0-17, June 7, 2005, Implementation of the Uniform Federal Policy for Quality Assurance Project Plans. Per EPA Region 8 UFP-QAPP Policy, the document is comprised of Part 1: *UFP QAPP Manual*, Part 2A (Revised – March 2012): *Optimized UFP-QAPP Worksheets*, and Part 2B: *Quality Assurance/Quality Control Compendium: Minimum QA/QC Activities*, found at: <http://www.epa.gov/region8/qa/reference.html>

A UFP-QAPP revision is required annually or after a significant change in scope. The EPA Manual CIO 2105-P-01-0 requires an annual review of multi-year UFP-QAPPs by the lead organization's project manager and documenting this review to the approval authority (in this case, EPA Region 8). The review will be documented using a completed Region 8 QA Document Review crosswalk (first page and page/section column) (found at: [http://www.epa.gov/region8/qa/EPA\\_R8\\_QA\\_DocumentReviewCrosswalk.docx](http://www.epa.gov/region8/qa/EPA_R8_QA_DocumentReviewCrosswalk.docx)) and be submitted together with the UFP-QAPP for review and approval of both the new (draft crosswalk) and revised UFP-QAPPs to EPA Region 8. Significant changes to project UFP-QAPPs will require the resubmission of the UFP-QAPP revision to the Corps PDT for internal review, and the revised UFP-QAPP to EPA for review and approval.

**2.1.4 Review Comments** - Key to the successful execution of the QC process for the products and services is the independent technical review or assessment of a product. This review is accomplished by independent technical reviewers composed of individuals having expertise in

disciplines involved in the type of product being developed and reviewed, who have a minimum of five years experience in the discipline and who were not involved in product or supervision thereof. Typically, reviewers are identified in the QCP. Five review scenarios are available to Districts for conducting independent technical reviews. The reviews are conducted (i) within the District, (ii) by another District, (iii) in CXs, (iv) by virtual teams or individuals throughout Corps, or (v) by a contract team or consultant. For complex projects, technical experts or consultant review is sometimes needed in addition to normal review. Independent technical review does not replace the need for and conduct of design checks or supervisory review of products. Sufficient time and resources are allocated to this process commensurate with the risk and complexity of the technical product. Review comments are constructive in nature, relevant to the product and contain the following elements: (1) A clear statement of the concern; (2) the basis of the concern; (3) the significance of the concern; and (4) the specific actions needed to resolve the concern. Issues resulting from independent technical reviews are resolved at the District level, with assistance from functional Section Chiefs, the Superfund QAM and Superfund Program Manager; or the Corps Divisions, EM-CX, and HQUSACE as needed. As policy issues develop, if it is necessary to seek guidance from HQUSACE it is obtained through the functional program manager's coordination. The District is responsible for the technical and policy content of all documents produced within the Omaha District. The technical review team documents technical issues, concerns addressed during the technical review process, and their resolution.

**2.1.5 Project Management Plan** - Each project establishes and is managed in accordance with a project management plan. This project management plan is developed by the PM with the customer and the other PDT members. The PMP is developed and maintained at a level of detail commensurate with the size and complexity of the project. It is a living, working level document that records the history, documents commitments by the RBCs, and the customer, and depicts the future direction of the project. The PMP is a binding agreement among all elements supporting the project that detail how the work is executed and how resources are expended. It defines the quality requirements, baseline scope, schedule, and resources, including contingencies, for the project. The schedule and funding levels are realistic and reflect overall program and budget constraints and realities. It considers all project requirements including real estate, planning, design, engineering, construction, environmental, operations, and other types of work whether performed by the RBCs, customer, or by contract(or). EPA Region 8, or associated customer and the Project Review Board (PRB) approve the plan and all subsequent changes beyond the PM's delegated authority. The controls and quality requirements placed on the management of each project are consistent with the risks (sensitivity, complexity, uncertainty, etc.) associated with that project and tailored to meet customer requirements consistent with national priorities and policies. This graded approach ensures efficient use of program resources. All projects are periodically evaluated by the PDT against the baseline requirements (quality, scope, schedule and cost) established in the PMP. The PM has the responsibility to challenge work in progress,

identify variances and evaluate alternatives. The PDT's focus for meeting project execution goals is to maintain the baseline requirements in the PMP. Controls are in place to facilitate timely corrective actions to ensure that changes do not exceed performance thresholds or limitations established by laws, policy or regulations. All changes within project resource requirements defined in the management plan are approved by the PM. The PM has the primary responsibility for fiscal integrity and authority to control project funds to ensure they are used appropriately and in accordance with the project management plan. The PM, in coordination with appropriate functional elements, is also responsible for taking prompt action to correct problems identified from internal and external evaluations.

## **2.2 Quality System Tools:**

The accompanying Table (2.1) summarizes quality management system tools and quality system actions that are available to the PM and PDT members to be undertaken to assure quality assurance and quality control criteria are implemented throughout the initiation, planning, execution, and completion of the investigative, design, and construction projects for the Superfund and EPA Region 8 programs.

**Table 2.1 General And Specific Quality Management System Tools And Actions**

	<b>Service Product Activities</b>	<b>Objectives</b>	<b>Quality System Management Tool</b>	<b>Requirements</b>
a. Project Initiation	Workload Acceptance	-Identify Customer Needs -Scoping	Workload Analysis Capability Review	For each new work effort proposal Project Management leaders supervisors/Technical resource office chiefs meet as necessary
	Availability of Manpower	Scheduling	Workload projections Workload Acquisition Strategy	Project Managers consult with Supervisory Staff and Senior Management for the PDT members and skills needed.
	Resource Skills	Skill Requirements	Individual Development (Training) Plans (IDP)	Supervisors annually set-up training for employees and document in the IDP.
	Work Acceptance	- Assign qualified personnel - Develop draft schedules	Resource Provider Meeting	For Each Project – Contact with Branch/Section Chiefs resource office
	Project Organization	Schedules	Project Management Plan (PMP)	For all projects
	Quality Control	- Assign process and project responsibility - Regulations, Guidelines	Quality Control Plan (QCP) (part of each PMP)	For all projects
	Safety	Safety Manual (EM-385-1-1) defines over-reaching objectives	Safety & Health Plan (part of PMP planning)	For all projects

**Table 2.1 General And Specific Quality Management System Tools And Actions**

	<b>Service Product Activities</b>	<b>Objectives</b>	<b>Quality System Management Tool</b>	<b>Requirements</b>
<b>b. Project Planning</b>	Scope Development	Task Identification	Work Plans	Every project, every major task for all projects
	Planning for Complete Project Execution	- Technical Reviews (Independent) - Line (Functional)	- Technical Project Planning - Environmental Regulations	For all projects-reviews dependent on complexity-breadth of work effort, number of experts-disciplines needed
	Environmental Data Activities	Data Quality Objectives (Systematic Planning)	UFP-QAPP	For all projects requiring collection and/or review of environmental data
	Analysis of Environmental Data	- Detection Limits - (program requirements i.e. CLP, etc.)	Engineer Regulations, Letters, CLP –Contract Lab Prgm, Instructions, Data Validation Report, etc.	Application to all activities supporting product preparation- including letters, reports, studies, etc.
	Data Usability Assessment	- Accuracy - Precision	Data Quality Objectives, Chemical Quality Assurance Reports CLP (Contract Lab Prgm)	For all batches of data; for all projects within program for consistency; for all project/task needs
<b>c. Project Execution</b>	Project /Task Completion	- Work Breakdown Structure -Schedule -Budget	Project Management Plan	For all projects- identifies the tasks and various levels of activities; includes PDT and reviews The PMP is modified when there are changes.

**Table 2.1 General And Specific Quality Management System Tools And Actions**

	<b>Service Product Activities</b>	<b>Objectives</b>	<b>Quality System Management Tool</b>	<b>Requirements</b>
c. Project Execution (continued)	Staff Competency	-Workload Requirements -Technical Expertise -Professional Development	Training Plans / Individual Development Plans Review of work products	Annual performance review by first-line supervisor or managers. Feedback on quality or deficiencies from various reviews.
	Product preparation (technical)	Report Objectives	Peer, independent and management reviews	For each product/activity as identified in QCP for project/program
	Product preparation (financial)	Schedule Review and Budget Review	Product Delivery Team Meetings	Held at regular frequency-no less than Monthly-typically on a weekly to bi-monthly basis
	Designs	Technical Requirements (Protocol, Guidance, Calculations, etc.)	Specifications & Drawings; BCOE reviews, Checklists; Biddable Contract Documents	For all work to be executed.  Promote efficiency with use of web-based SharePoint sites (such as Corps QMS sites )
	Change Management (Task Project)	Project Delivery Team Involvement (Schedule/Budget)	Project Review Board (PRB)	For all projects monthly review of projects/program by senior management. Program review of all current awards, schedule and budget



**Table 2.1 General And Specific Quality Management System Tools And Actions**

	<b>Service Product Activities</b>	<b>Objectives</b>	<b>Quality System Management Tool</b>	<b>Requirements</b>
<b>c. Project Execution (continued)</b>	Change Management (technical)	Technical Objective Environmental Requirements (Regulatory)	PDT-line functional reviews-includes both internal/external reviews	Described in PMP-for each task for defined efforts. Includes customer & higher headquarters-specialty reviews
	Contract Management	Tasks, Project, Program Requirements	Acquisition Plans  QAP	Subset of workload analysis-where internal resources are insufficient-then contracted resources obtained to complete mission
<b>d. Program Management</b>	Contractor Acquisition	- Program (e.g. needs Technical expertise not available through Corps staff workload/schedule constraints)	A-E Selection Panel or Source Selection Board (Various Protocols/Procedures)	On a capacity needed basis-typically in 3-5 year cycle
	Task Order Management	Scopes of Work (SOW)	UFP-QAPP, PMP	For each contract, contractors provide management SOPs which cover QA and QC procedures for all efforts conducted in support of the project.
	Safety	Activity Hazard Analysis	HSP & SSHP	For each project
	Deliverables, Reports, Studies (by Contract)	- Scope - Contract Requirements	Line & Functional Review (also PDT, Peer and external review)	QC by contractor is required for all products. QA by Corps through staff resources-all projects
	Task Order Assignment	Capability; Needs; Mission requirements	Negotiations; independent government estimates	Tiered process-depending on dollar value of work assignment

**Table 2.1 General And Specific Quality Management System Tools And Actions**

	<b>Service Product Activities</b>	<b>Objectives</b>	<b>Quality System Management Tool</b>	<b>Requirements</b>
d. Program Management (continued)	Accounting (Financial)	CEFMS	Automated Financial Management System Monitoring	For all work undertaken & completed
	Labor, Travel Indirect/Direct Accounts	CEFMS	Automated Financial Management System	For all work undertaken & completed
	Management Assessments	Budget/Schedule	Quad Sheets, Project Review Board	Senior Mgmt Review of interim and final milestones, budget execution, workload accomplishments, and critical facts and communications – monthly to District management. Division is copy-furnished PRB notes, and often attends monthly meetings.
	Program Management Assessment	Tiered Review Process: National Regional Local	PMP, Command Management Review, Project Review Board	Division staff attend monthly District PRBs and annually review the HTRW program for compliance with agency regulations, project objectives & commitments
	Quality Measures	Budget (award): Schedule (milestones): Technical and Admin Record	Checklists: QCP, UFP-QAPP, Project Review Board	Annual (minimum) or at milestones such as awards or design review. Status updates on projects, and activity with special focus on QCP.

**Table 2.1 General And Specific Quality Management System Tools And Actions**

	<b>Service Product Activities</b>	<b>Objectives</b>	<b>Quality System Management Tool</b>	<b>Requirements</b>
d. Program Management (continued)	Customer Feedback	Honest, Open and Respectful communications	PDT, IAs, PMP, monthly reports	Provide monthly financial reports; regular schedule progress update (via team meetings) & regular interface with EPA on individual projects, programs, etc.
	Project Finances	Costs; regulations; legal authority	Audited - internal & external DCAA, Internal Review Office	Regular audits of selected programs/projects. Especially financial info to include rates, appropriateness of charges, (both contractor efforts-e.g. DCAA and in-house.)
	Remediation (via contract)	Remediation goals	Design documents- Bid Packages, Specifications	For each project
	Pre-Field Execution	Contractor Submittals	HSP, QCP, UFP-QAPP, Schedule, Submittal Register	For all contractor efforts-review by design & construction staff prior to issue of NTP
	Field Execution	Compliance with specified measures and protocols	Quality Control Reports, (weekly, and if necessary, daily progress reports-tied to payment info)	Oversight of phases of work, as needed -safety included. Check for compliance with full range of submittals

**Table 2.1 General And Specific Quality Management System Tools And Actions**

	<b>Service Product Activities</b>	<b>Objectives</b>	<b>Quality System Management Tool</b>	<b>Requirements</b>
e. Construction	Management Assessments	Program and Project Budget/Schedule	Project Review Board	Senior Mgmt Review of milestone, budget execution – monthly to District management, and copy to Division
	Change Management	Compliance w/ "changed" Conditions/Requirements	Modifications, Field Change Notices	As necessary for each project
	Operations & Maintenance	O&M Plan	UFP-QAPP, LTMP, HSP, etc.	For all projects-instructions for successful turnover of projects
	Remediation Verification	Long Term Monitoring Plan (LTMP)	LTMP, UFP-QAPP	Monitoring Plans-Review of all completed projects to assess success or continued functionality of remedy. Projects as required
	Remediation Completion	Contract Closeout	Closeout Report (Checklist)	Final project verification for all construction projects
	Partnering	(during specific aspect of entire project life)	Partnering Agreement	Selected projects-to formalize team commitment to “unique” project goals-define execution expectations

### **3.0 PERSONNEL QUALIFICATION AND TRAINING**

#### **3.1 Establish Technical Proficiency and Quality Requirements at the Organization, Program, and Project Levels:**

The Omaha District policy is to foster training of all employees working directly on EPA programs/projects in regard to the EPA Quality Management Plan and technical requirements for the type work being undertaken. The prerequisite for the production of a quality product or service is to ensure personnel working on the project have adequate technical skills to do the work. All personnel selected to work on environmental specific programs are qualified to perform assigned tasks in accordance with project requirements. It is imperative District staffing levels include sufficient senior professionals to perform current work and provide appropriate on-the-job training of junior staff members. An adequate staff of junior members is to ensure continuation of the District's institutional and technical knowledge.

Senior managers are experienced in the established Corps Quality Assurance and Quality Control (QA/QC) processes through a combination of formal classroom training (e.g., Corps Prospect Courses) and years of related program/project experience. This well-established systematic process of QA/QC carries over into all aspects and levels of senior management work and performance. Managers for EPA programs/projects are well matched with the type of work being performed. These managers are selected based on their specific knowledge of environmental fields and work including the associated quality system requirements. Specific environmental related training (e.g., EPA, ITRC (Interstate Technology and Regulatory Council), API (American Petroleum Institute), NSC (National Safety Council) courses may be required to assure a sound understanding of all aspects of environmental programs performed by the Omaha District for EPA.

Environmental Quality System skills are gained through formal education, formal training, years of experience working on environmental programs/projects, and active involvement in environmental programs/projects specifically involving QA/QC activities. With the Corps and the Omaha District's history of performing EPA projects, the organization and personnel have gained in-depth knowledge of and are strong proponents of the EPA Quality system. These positions require up-to-date awareness and proficiency in technical Quality System technology and skills, and such training for QA/QC personnel is a high priority to managers and the Omaha District.

#### **3.2 Review of the Training Program:**

For the HTRW and Superfund programs, the Northwestern Division performs selected programmatic reviews/audits with the review cycle varying from annually to every three years. These reviews generally include assessment of the District's Quality Assurance and QMP implementation programs. As part of their review and reporting to higher levels of Command,

senior management addresses the training program, activities, status and future needs relating to the Districts' QMP.

### **3.3 Individual Development Plans:**

It is the objective of the Corps to promote the retention/development of technical expertise of District staff by encouraging developmental assignments, quality training, professional registration, and participation in technical societies and at conferences. An Individual Employee Development Plan (IDP) is an important tool to successfully manage the required training that employees have received, are scheduled to receive, and will need in the future. Individual Employee Development Plans (IDPs) are prepared by the employee and immediate supervisor, and are updated on an annual basis. These five-year plans identify developmental objectives (in short and long-term goals), required and recommended training, developmental assignments, and training and self-development already completed. IDPs are used to encourage continuous employee enrichment and development and allow a prioritization to training as dictated by the employee's responsibilities.

### **3.4 Training Resources:**

**Short Term Training.** It is the goal of the Corps of Engineers to provide appropriate training and development opportunities to assure maximum efficiency of civilian members in the performance of their official duties. Training needs are reviewed, and effective training practices and techniques applied in efforts to raise individual performance and to meet present and anticipated needs for individual knowledge, skills and abilities. The Corps has developed a wide array of HTRW courses and workshops tailored to the environmental mission needs. These courses range from the administration of environmental contract delivery orders, risk assessment and management, environmental sampling, safety and health at hazardous waste sites, and environmental regulations, to technological aspects of environmental restoration such as soil vapor extraction and bioventing. In addition, the Corps takes advantage of courses, seminars, and workshops sponsored by other agencies and the private sector.

**Long Term Training.** To keep the Corps abreast of managerial, technical, and scientific advancements, some members may need training opportunities beyond the customary short-term programs. DOD, HQDA, HQUSACE and local activities provide a variety of long-term training opportunities. These opportunities allow employees to obtain formal, continuous, detailed technical knowledge at major universities. Every Corps member who meets the established criteria and standards are given an equal opportunity to be considered for long-term training and education. Directions from HQUSACE also prescribe minimum expertise requirements for specific specialty areas in various disciplines for the HTRW Design Districts.

**Quality System Training.** The Corps has long standing regulations, guidance, and operational procedures that prescribe very high quality control and assurance in the environmental fields. This Superfund Quality Management Plan (QMP) document involves managers and technical

staff who will read the current QMP and be fully aware of, understand, and follow the principles and requirements presented by the QMP. The successful implementation of the QMP requires support and participation by all personnel. This includes training for both managers and technical staff in areas such as Quality Systems, Corps regulations, policies and guidance, as well as potential use of QMS tools. Training to develop other skills such as communication, management, technical writing, or interpersonal skills is also considered.

**Specialized Training.** The Omaha District's Safety Office is responsible for District-wide stewardship and monitoring regarding Human Safety and Health related personnel certification and qualifications. The Safety Office requires personnel who will be physically at HTRW sites to obtain training and certification under OSHA's 40-Hr Basic Training Course and the Safety and Health for Hazardous Waste Sites 8-hour Refresher. The Safety Office also manages a medical surveillance database for all 40-hour trained staff supporting environmental projects. These HTRW Health and Safety Training Requirements are outlined in the Construction – Resident Engineer Management Guide (REMG) for Hazardous, Toxic, and Radioactive Waste (HTRW) Projects (EP 415-1-266, Section 5).

- Hazardous Waste Management and Transportation Training Requirements. When shipping hazardous waste, hazardous materials, or other remediation materials and wastes, typically the EPA and DOT regulations must be followed. The Omaha District generally does not have involvement with radioactive sites, however, if that situation changes, the Nuclear Regulatory Commission (NRC) regulations must also be followed. All Corps employees executing hazardous waste manifests and related documents must receive appropriate training before executing such documents. Training records fulfilling all regulatory requirements must be documented and maintained onsite during the life of the project in the event of a regulatory inspection. The annual RCRA training requirement as per both 40 CFR 262.34 (a)(4) and 40 CFR 265.16 is met via the annual OSHA 8-hour refresher. DOT requires general awareness/familiarization training every three (3) years per Department of Transportation (DOT) 49 CFR 172.700, Subpart H; however, it is DOD requirement that all employees who prepare and ship hazardous material by commercial or military vehicle to be trained every two (2) years. Corps is complying with the DOD requirement.
- Only Corps members formally designated and authorized by a district commander/deputy commander shall be allowed to execute hazardous waste manifests and related documents for the site. An authorization letter should identify that the individual is within his/her scope of employment when executing manifests and related documents. In order to document appropriate training and the scope of an individual's signature authority, a manifest certifying official must have completed the required training and obtained certification. Personnel who manage hazardous waste for the purpose of shipment are required to complete a program of classroom instruction or on-the-job training that teaches hazardous waste management procedures and contingency plan implementation relevant to the positions in which they are employed. An annual review of initial training

material is also required. This information is outlined in Section 7 the Construction REMG for HTRW Projects (EP 415-1-266).

- **Professional Registration.** Professional certification is vital to maintaining Omaha District’s Vision of being the lead district in execution, innovation, and disciplined action for Corps via a professional and highly trained workforce. A primary responsibility of an environmental professional is to protect human health and the environment, and all actions taken on behalf of our customer, EPA Region 8 must be consistent with this responsibility.

As per 40 CFR.10 an environmental professional is a person “who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases....and typically holds a current Professional Engineer’s or Professional Geologist’s license, or is licensed or certified by the federal government, a state, tribe, or U.S. territory...”

Discipline specific certifications are also encouraged and supported by the Omaha District to ensure staff meets industry standards of conduct and work.

- **Technical Society Membership.** Membership in a technical society is congruent with Omaha District’s vision of maintaining a professional and highly trained workforce.
- **Leadership Development Program (LDP).** An Army leader is anyone by virtue of assumed role or assigned responsibility inspires and influences people to accomplish organizational goals, and Army leaders include both Army civilians, as well as soldiers. Army leaders motivate people both inside and outside the chain of command to pursue actions, focus thinking, and shape decisions for the greater good of the organization (FM 6-22, Chapter 1). The Army recognizes several values that must be developed in all Army individuals, both soldiers and Army civilians: **Loyalty, Duty, Respect, Selfless service, Honor, Integrity, Personal courage**, otherwise known as **LDRSHIP**.

The Omaha District has an LDP intended to develop the leadership and management skills of the Omaha District’s current and future leaders. Participants engage in a one-year, multi-faceted leadership and management development program that targets the several organizational goals, the following are apropos to this QMP: building teamwork, contributing to an “enabling” culture which is better able to deal with rapid change, improving leadership skills, developing better understanding of customers, partners, and focus on Strategic Vision, building understanding of how the Omaha District fits into the “big picture” with other Federal, state, and local agencies.

### 3.5 Prioritize Training Resources:



The District Commander has overall responsibility to implement the District's total training program. Part of this program includes environmental related training required in support of the District's EPA Superfund projects/programs. Training is a District responsibility and is almost always locally funded. The District is budgeted funds specifically for training purposes, and is executed through the Omaha District senior managers and supervisors. The employee's supervisor balances resources with needs so as to provide adequate training opportunities for the staff. Supervisors will keep employees informed regarding training opportunities, and wherever feasible, shall approve employee-training activities in accordance with the approved IDP. Environmental quality system training can be obtained through a variety of means, including but not limited to the following:

- ☐ Informal Lectures during work hours (Peer discussions, seminars, workshops).
- ☐ Virtual Learning via internet course work
- ☐ Intra-governmental seminars, conferences, and contractor –cooperative events.
- ☐ Corps of Engineers Training Center (Corps-wide)
- ☐ Formal commercially available courses at or near the District office
- ☐ Lectures by peers or other professionals (At-Office Presentations)
- ☐ Other (Federal/State/Local government training)
- ☐ Informal presentations by Contractors on environmental topics (Brown Bag sessions)

### **3.6 Training Effectiveness and Retraining:**

Primary responsibility for determining if environmental quality system training is effective resides with the supervisor of personnel engaged in the work. Each separate office chief will oversee their specific training and accomplishments through feedback from PMs, the Superfund Program Manager, QAM, Branch Training Administrators, and discussions with the PDTs and other employees.

### **3.7 Documentation of Training:**

Individuals are responsible to assure their completed training records are kept updated. The employees' personnel record files should be reviewed occasionally throughout the year to make sure all training achievements are addressed. Each IDP requires a section for identifying past year's training/learning achievements. This listing provides the employee and management a visible record of accomplishments and needs having been met. The IDP review serves to remind/refresh employee and management of quality system training needs and past achievements. Formal records for employee training records is the Army's West Region Human Resources Office (HRO), and is entered into the civilian training record; any mandatory training and any training eight hours or more provided at government expense or on government time for Omaha district personnel.

## **4.0 PROCUREMENT OF PRODUCTS, SERVICES, AND ACTIVITIES**

The Omaha District performs most activities and provides the majority of services and products in support of EPA's Superfund Program through contractors. This chapter describes how these contractor services are acquired and managed to insure compliance with the QMP practices presented herein, and that the quality of products contractors produce also meet the requirements of this QMP, and are continually delivered.

### **4.1 Planning and Control:**

The Omaha District utilizes both pre-placed contracts and site-specific contracts. Attachment 2 lists the contracts/contractors that are currently available for use. The process followed to select the appropriate contract/contractor to perform the project specific activity is as follows. The project team, led by a Project Manager and including the appropriate technical team members and a contract specialist work closely with the EPA's RPM to develop an acquisition strategy. This document identifies the project specific requirements and compares them to the capabilities of our pre-placed contracts as well as those available in the marketplace. The PM or project team makes a recommendation in an electronic Project Acquisition Strategy Board Worksheet. This document is then reviewed by the Omaha District's Project Acquisition Strategy Board and approved by the Contracting Officer.

Omaha District contracts all have standard requirements regarding a Contractor's Quality Control Systems and Procedures that must be in place. The project team identifies the project specific requirements as they relate to the acquisition and use of environmental data. The specifications relating to the project specific needs would be included in the project task order or in a new site-specific contract. Corps requirements include the use of a DOD ELAP Program for the minimum requirements for the environmental laboratory, and for ensuring the competency of an organization generating environmental measurement data. This policy is consistent with the new EPA Policy to Assure the Competency of Organizations Generating Environmental Measurement Data Under Agency-Funded Assistance Agreements or Interagency Agreements (reference [http://www.epa.gov/fem/lab\\_comp.htm](http://www.epa.gov/fem/lab_comp.htm)).

The project specifications would relate both to the means and methods for acquiring the data (i.e., the use of a Staged Electronic Data Deliverable (SEDD) Stage 2b for minimum chemical data reporting), as well as to the work plans and other quality control procedures required for the specific project. Development of these specifications is the responsibility of the Omaha District's project team who would be working closely with the EPA Project Manager. The contract specialist assembles the specifications for release, and ensures all contract actions are compliant with standard acquisition regulations.

All contracts acquired for the support of the EPA's Superfund Program must be capable of providing high quality environmental data and be supported by established contractor's quality control systems. These contractors are selected in part based on their established quality control systems and demonstrated past performance in acquiring and utilizing environmental data. The project team in developing their acquisition strategy identifies any specialized needs as they

relate to environmental data and data quality and factors this into their recommendation of the appropriate contract. The PDT reviews contractor quality control plan for each construction task order, and confirm that the contractor continues to maintain an effective QC System.

#### **4.2 Assessment and Verification:**

The Omaha District has well-established procedures for acquiring contracts as well as managing them (to include quality assurance) once they are in place. This section will cover both the acquisition process as well as the management/quality assurance stage once the contracts are in place. Contracts that support EPA's Superfund Program for environmental work are almost always acquired through a Request for Proposal (RFP) Process. The RFP contains the generic scope of work and identifies the minimum qualifications for personnel as well as the components of the contractor's quality control system. The RFP also identifies the evaluation factors that will be used to select the contractor. The evaluation factors always include the management and contractor's quality control systems, personnel qualifications and past performance, all of which have a component that relates to the acquisition, management and use of environmental data. An evaluation board consisting of senior technical, management, procurement and legal staff review and evaluate the proposals and pass their findings on to a senior management group and the source selection authority who is typically a senior procurement official within the Corps of Engineers. EPA staff is typically invited to participate in the evaluation process as a technical advisor member of the evaluation board.

Omaha District's technical staff performs the quality assurance function once a contractor has been awarded a task order and is working at a site. Personnel from our Engineering Division, Project Management Divisions and potentially Construction Division are involved in this function. This process involves the review and approval of work plans (PMP, QMP (QAP + QCP), UFP-QAPP, SOPs, etc.), verification of environmental laboratory credentials, and performing oversight of field activities and the sampling and analysis of field samples, including QC samples to confirm compliance with the approved UFP-QAPP and other workplans. Audits and inspections include oversight activities of any number of field sampling activities, or the collaboration of field analytical results and execution of contingency based actions. Inspections of laboratory facilities are also conducted when appropriate. The EPA RPM participates in the quality assurance effort by reviewing work plans and quality assurance plans as well as participating in the ongoing project and providing their feedback and recommendations on issues pertaining to the ongoing work.

The Omaha District works closely with our contractors in accordance with the contract and QAP. In many instances we have a partnering agreement in place and strive to work in an environment that allows for the free flow of information such that both parties take full advantage of the contractor's capabilities and experience. There is no barrier to the contractor providing feedback on the project requirements and we are positioned to adjust our approach as long as the fundamental quality requirements are not compromised. The contracts all have the standard contract clauses relating to disputes. It is our intent, however, to work cooperatively with our

contractors to resolve issues at the project level to the satisfaction of both parties. As mentioned above, we strive to work in a partnering environment that allows for proactive, open communication between the parties. It is in both the governments and the contractor's best interest to resolve issues quickly and in a non- confrontational manner since the contractor is typically working on a long-term contract with their performance being evaluated and used as a basis for putting additional work on the contract. Each project team develops their specific approach to communicating with the contractor, identifying changed conditions and developing a revised approach to addressing the changed condition. These project specific procedures are conducted within the context of the formal process where formal contract modifications are required for additional work resulting from changes that are beyond the scope of the initial contract. These processes are well established and provide flexibility to the project teams to address site-specific conditions.

#### **4.3 Procurement Documents and Records:**

The project's contract specialist and the Contracting Officer are responsible for the official contract file, while the project team, led by the Project Manager, is responsible for the project file. The official contract file includes the original contract, all modifications and supporting documentation, all official correspondence, and all payment records. The project file includes all work plans, review comments, meeting notes, daily reports, and correspondence that do not relate to contract actions. Key members of the project team will maintain detailed records associated with their role. Examples are as follows:

**Resident Engineer:** This individual manages the remedial action or construction contract and is typically the Contracting Officer's Representative for the contract. This individual and staff will document their quality assurance and financial management functions for the contract.

**PM:** The PM has the lead role in communicating with the contractor during the investigation / design stages of a project. They will maintain detailed files relating to communication with the contractor as to technical issues, direction given, and comments on submittals, payment, and related matters.

## 5.0 DOCUMENTS AND RECORDS

This section addresses the management of effective identification, preparation, control, and storage of technical and quality-related documents and records.

### 5.1 Identification of Technical and Quality-Related Documents and Records Requiring Controls:

Essentially all documents and records associated with our support to the EPA Superfund program require some level of control. A listing of the typical documents and records developed over the course of a Superfund project are categorized and listed below.

Contract Documents: These include scopes of work, specifications, drawings, amendments, modifications, government estimates, contractor proposals, pre-negotiation memorandums, summaries of negotiations, vouchers, payment estimates, and correspondence related to the contract. The District's Contracting Division office has the responsibility for maintaining and controlling all contract files.

Financial Documents: These include time sheets, travel orders, travel vouchers, and the records from our financial management system that show all transactions against the project specific account(s). The individual employee's office has responsibility for maintaining and controlling these types of financial records.

Project/Technical Documents: Project and technical documents include quality-related documents and records requiring control. (e.g., QAPPs, SAPs, QMP, SOPs, laboratory data reports). These also include work plans, data validation reports, feasibility studies, site inspection reports, remedial investigation reports and risk assessments, design documents and calculations, quality control/quality assurance reports, other technical documents, project correspondence, and as-built drawings. These documents are most often prepared in draft form by contractors, and subject to Corps review. Comments are addressed and the revised document submitted to EPA for review and approval. Once approved, the documents are then finalized by the contractor and distributed to the project stakeholders by the Corps PM. All project documents are maintained by the Corps PM; including all document distribution lists, historic and current draft and final documents inventory and communications to the project stakeholders to distribute and update the project documents by the Corps PM. Information required to support EPA's decision-making process is turned over the RPM for inclusion in the project's Administrative Record. Other information required by EPA to support their efforts is turned over to the RPM for their use.

The majority of work done for EPA Region 8 has been performed under the EPA CLP program. To date, VB I70 has used the CLP Labs, and Libby tracks all sample data in EPA's Scribe Data base. The Libby Asbestos Superfund Site has a rigorous QA program for EPA's asbestos labs. Each lab was screened in a lab audit in 2008; additionally, a lab audit was conducted in 2012 on

each lab by EPA QATS and an EPA official. The Libby labs must also keep up on the EPA Libby laboratory modifications and attend a monthly teleconference calls to discuss lab performance and asbestos issues. A follow-up/focused audit will be conducted in 2013 to further check on the labs. Interlabs (round robins) and performance standards for soil samples are also administered as a part of the QA program. EPA and its QATS contractor oversee all of these activities.

Tracking of all Superfund Non-CLP Analytical data must be reported to EPA through the Analytical Services Tracking System (ANSETS) as established in OSWER Directive 9240-2C, October 2006 (See Attachment 7). Further information on the ANSETS requirement is located at <http://www.epa.gov/superfund/programs/clp/ansets.htm>. Region 8 also requires submission according to OSWER Directive 9240-D, *Tracking Superfund Non-CLP Analytical Data from CORPS*, found at [http://www.trainex.org/download/fastac/ansets\\_memo\\_2002\\_and\\_2006.pdf](http://www.trainex.org/download/fastac/ansets_memo_2002_and_2006.pdf). When requested for Region 8 projects, Corps will provide electronic submittal of sampling and geologic data in accordance with Region 8 policies, guidelines, and formats. The Region 8 Electronic Data Deliverable (EDD) is a standardized format for all submittals. The Corps is responsible for reviewing and approving any Corps contractor work for consistency with EPA Region 8 SEDD Stage 2b requirements. The Omaha District will typically retain the final product including the supporting information (field notes, raw data, etc.). This information can be provided if it is requested and determined to be necessary.

## **5.2 Description of Systems for Controlling Technical and Quality-Related Documents:**

Army Regulation 25-400-2 “The Modern Army Recordkeeping” provides overall guidance and requirements for maintaining and controlling documents and records. The District will follow this and the EPA Region 8’s requirements to determine retention times needs for specific information on all EPA Superfund project documents and records. The body of regulations and guidance documents are identified in Chapter 1 to address the format for specific documents and records (drawings, specifications, work plans, health and safety plans, site investigations, quality control/quality assurance documents, etc.). Project personnel follow these regulations and guidance when working in support of EPA. Format requirements are adjusted to reflect specific EPA requirements when appropriate. This is especially true when preparing the UFP-QAPP. EPA and Corps have sponsored guidance to follow when preparing these documents for EPA.

The District has published only limited local requirements/guidance related to the format of documents and the procedures associated with maintaining project records. We follow established Corps procedures for the most part. Any changes to requirements get distributed to the project team through their supervisory channels.

The District’s project team works closely with their EPA counterparts and information flows freely between the agencies. The District’s office space where records are kept is secure and there is no access to them except by authorized personnel. If necessary, chain-of-custody and confidentiality procedures can be employed for evidentiary records. The Corps PM is

responsible for discussing the security requirements for project records storage and release, and executing and documenting that agreement. Outside entities are not allowed into our facility to view project records. Formal requests for project information, including Freedom of Information Act requests, are coordinated with our Office of Counsel and with the EPA project representative including EPA counsel when appropriate.

### **5.3 Tracking and Retrieval of Technical and Quality-Related Documents and Records:**

The project team maintains control over all technical and quality related documents and records during the period when the project is active. The Contracting Division office and the Resource Management office maintain the contract and financial records at all times. The project file is consolidated at the completion of the project and stored at the Omaha District office by the PM. The project manager is responsible for maintaining the electronic records and data, including project documents and supporting information (e.g., field logbooks, laboratory case narratives). It will be stored electronically on appropriate media and archived according to project requirements for chain-of-custody or confidentiality. The Corps PM is responsible for communicating all project document revisions and notifying all project stakeholders to process obsolete documents for removal. The responsibility to physically remove obsolete documents from the workplace resides with the individual PDT member or stakeholders. The project files are eventually moved to archival at a Federal Record Center. The timing of this move is generally based on the availability of storage space at the District office with input from the EPA Region 8 RPM.

The project information for Superfund sites is typically not considered to require any special requirements in regard to security. The security measures that are maintained at the Omaha District office, allows that standard procedures to be followed for the storage and archival of EPA project documents. Access to the information is restricted based on standard operating procedures within the District office. Access to the facility is controlled and the general public is not allowed in to view project records. Knowledge as to the location of the project files is generally limited to the program manager, project manager, and project team members. This group of individuals is familiar with the Superfund program and will not release information without first coordinating with the EPA project staff. Formal requests for information are coordinated with the EPA RPM as well as our office of Counsel.

The District utilizes contractor support to prepare the vast majority of technical documents. The Omaha District will typically retain the final product including the supporting information (field notes, raw data, preliminary drafts, etc.). The contractors have (as required by the contract) quality control and change management processes in place that are utilized to insure the receipt of a quality product and to manage the review and approval process leading to a final approved document. Unless specifically instructed by EPA, only final documents are provided to EPA for use in administrative records or for placement in repositories where the public can view them. These documents have been reviewed and approved by the Omaha District in accordance with the projects QA/QC process. The documents are provided to EPA only after they have been approved and finalized.

## 6.0 COMPUTER HARDWARE AND SOFTWARE

Computer hardware and software, including applications such as electronic communications systems, are essential management tools for environmental data. Computer hardware and software are used for a variety of purposes, including making calculations and projecting the impact of information collected, storing data, and displaying visualizations. The following sections describe the Corps management approach for computer hardware and software, and the data they contain, to allow Corps to meet EPA's quality requirements for electronic environmental data.

### 6.1 Configuration Testing and Documentation:

Corps complies with all applicable DOD Directives, Army and Engineer Regulations, Engineer Pamphlets and Circulars related to Information Management. In addition ER 25-1-2, Life Cycle Management of Automated Information Systems details the roles and responsibilities for managing and updating hardware and software systems over the course of their useful life.

Responsibility for quality control of hardware and software rests at Headquarters within the Army Corps of Engineers - Information Technology team (ACE-IT). The ACE-IT mission is to provide enterprise-wide IM/IT services for all information management functional areas to include Automation, Communication, Information Assurance, Records Management, Printing & Publications, and Visual Information. These services include local support activities, as well as enterprise services such as centralized AIS hosting, long-haul communications, e-mail support, service desk, and information assurance services. Once computer hardware and/or software is determined to be appropriate for use within Corps local support is provided by the ACE-IT Regional Information Officer and his staff of technicians and other IT professionals. The functions and responsibilities of ACE-IT Regional Information Officer are described below:

*Regional Information Officer:* Responsible for the overall quality of the Omaha District's information system.

- ☐ Ensures compliance with all applicable Corps, Army, and DOD requirements for computer hardware and software and other information management functions.
- ☐ Responsible for approving District computer hardware and software purchases.
- ☐ Supports the District's needs for presentation of information.
- ☐ Responsible for ensuring appropriate hardware and software exists to meet all information presentation needs, including digital overhead projectors.
- ☐ Responsible for digital archiving of all data, including scanning and saving files as digital records.
- ☐ Acts as liaison with the Federal Records Center for long term archiving of necessary records and documents.
- ☐ Supports the District's computer hardware and software systems.
- ☐ Responsible for maintaining the District's Internet, intranet, and computer capability.



- Installs, maintains, and troubleshoots all computer hardware and software with Omaha District.

## **6.2 Hardware and Software Management:**

Changes to hardware and software are managed through the Regional Information Officer. Requirements regarding the procurement of computer hardware and software are addressed in Section 4.0, “Procurement of Products, Services, and Activities.” Administrator privileges on all computers are limited to appropriate staff from the Regional Information Officer, thereby resulting in strict change control. Changes to hardware occur on an individual basis. Changes to software are installed via batch programs through the intranet when possible. In the event that programs need to be installed on individual computers, ACE-IT installs the appropriate software. Regular automated checks are performed for unauthorized or inappropriate software when computers are logged into the network.

## **6.3 Software Development and Evaluation:**

Widely accepted software developed and evaluated by the Corps (i.e., HEC-RMS, etc.) is controlled centrally through the Corps laboratories. This software is validated in a manner similar to other COTS by the Corps and other governmental agencies. EC 25-1-303, “Information Technology Investment Management,” details the business process for selecting, controlling, and evaluating information technology investments within the Corps. Site-specific models and programs developed by the Project Delivery Team (PDT) are calibrated with site specific information and then peer reviewed to ensure adequacy and accuracy of data inputs. The development or use of site-specific models and programs will be fully addressed in a UFP-QAPP, including any assumptions. If the software is essential to project success, an Independent Technical Review (ITR) can be performed with the use of similar but separate software system to independently evaluate the accuracy of the Conceptual Site Model and results.

## **6.4 Data Compilation, Quality Control, and Maintenance:**

Prior to collection of data on a project, the PDT develops Data Quality Objectives (DQOs) to ensure that the appropriate data is being collected for the project-specific needs. A full description of this process is outlined in Section 7.0, “Planning.” In addition, through the development of the Quality Assurance Project Plan (UFP-QAPP), the parameters for measuring the accuracy and precision of this data are outlined. Data quality is measured against these parameters and corrective actions are implemented as appropriate to address any deficiencies.

All data collected for analyses performed at a CLP laboratory are required to use the FORMS II Lite sample tracking software as established in OSWER Directive 9420.0-38, November 14, 2002 (See Attachment 8). More information on this directive can be found at <http://www.epa.gov/superfund/programs/clp/f2lite.htm>. Requirements will be documented in the UFP-QAPP for processing, obtaining and managing metadata, including QC data for field and

laboratory activities shall be documented in an approved data standard / format requirements, i.e., Scribe, Staged Electronic Data Deliverable – SEDD Stage 2b EDD for electronic data. EPA projects supported shall comply with the OSWER Directive 9200.1-103, *Inclusion of Scribe into the Role of Tracking Superfund Sampling Data*, regarding the use of Scribe or FORMS II Lite for tracking both CLP and non-CLP sampling data. All data and information will meet applicable Federal and EPA information resources management, data and geospatial policies, guidelines and standards, including the EPA Data Standards Policy CIO 2133, EPA Policy CIO 2131, and those of the Federal Geographic Data Committee.

FGDC-STD-001-1998, Content Standard for Digital Geospatial Metadata, Federal Geographic Data Committee, June 1998

FGDC-STD-007.1-1998, Geospatial Positioning Accuracy Standards Part 1: Reporting Methodology, Federal Geographic Data Committee, 1998

National Geospatial Data Policy, CIO 2131.0

Data is maintained for the duration of the project. In the event that data are later used for a secondary use, in addition to the primary purpose, the data is evaluated against the new DQOs to ensure adequacy or determine qualification necessary. The PDT has ultimate responsibility for development of data needs and quality control. The project chemist has the Quality Assurance role for chemical data within the PDT.

Our contractors will typically be responsible for maintaining a project's data. The capability of the data management system needs will vary dependent on the scale of the project and the intended uses of the information. The PDT (which includes EPA) will decide on the appropriate level of sophistication. The contractor will be responsible for having individuals with the appropriate training and experience to manage the data, and specific software systems. These qualifications will be reviewed and approved by the PDT. Access to the data will be limited with appropriate security precautions in place (passwords, etc.). Data that is distributed to the project team and beyond would be in either hard copy or read only format.

## **6.5 Archiving and Retrieving Historic Files and Data:**

Project data is stored individually for each project. The PDT develops the necessary format and timelines for storage of data and data files. At a minimum, all data are stored at the District for the duration of the project or Interagency Agreement. If otherwise specified and agreed upon, longer-term storage options may be agreed upon. If appropriate, records and data are archived at the Federal Records Center.

Software is installed on PDT-member's hard drives and data files are stored, on the District's network drives (intranet), and, as appropriate, on storage media (i.e., cassettes, CD-ROMs, etc). Recovery is possible throughout the duration of the project. Upon completion of the project, these files are offered to the customer for longer-term storage.

## **7.0 PLANNING**

Corps' goals for site investigation, remedial design, and remediation are to deliver quality investigation, engineering design, and remediation efforts on schedule and within budget without compromise to health and safety. These goals challenge RBCs and Districts to continue striving for better, safer, faster, and cheaper completion of work activities that achieve site closeout.

### **7.1. Health and Safety:**

The Omaha District follows the requirements in ER 385-1-1, Safety and Occupational Health Document Requirements for HTRW Activities (ref 1.1.3.f). The ER defines roles and responsibilities of Corps safety and occupational health staff at the district. The goal is to assure that safety and occupational health is cost effectively planned for (designed into projects) and implemented in the field while performing HTRW site investigations and remedial action construction. EM 385-1-1, "Safety and Health Requirements Manual", simultaneously covers contractor operations. The plans address all applicable regulatory requirements in accordance to 29 CFR 1910.120(i)(2) – Occupational Health and Safety Administration, Hazardous Waste Operations and Emergency Response; 29 CFR 1926, OSHA, Safety and Health Regulations for Construction; 29 CFR 1926.65, OSHA, Hazardous Waste Site Operations and Emergency Response; US EPA Occupational Health and Safety Manual; Corps Safety and Occupational Health Document Requirements for HTRW and Ordnance and Explosive Waste Activities, ER 385-1-92 (ref. 1.1.3.o.); and Corps Safety and Health Requirements Manual, EM 385-1-1 (ref. 1.1.3.h.). The Site Safety and Health Plan (SSHP) provides site background discussions and describes personnel responsibilities, protective equipment, safety and health protocols, decontamination procedures, personnel training, emergency response contingency plan, and type and extent of medical surveillance. Accident prevention plans are also incorporated into the SSHP. The plans identify problems or hazards that may be encountered and how these are to be addressed. Procedures for protecting third parties, such as visitors or the surrounding population, are also provided. The plans are reviewed and accepted / approved by the District/project industrial hygienist or District Safety Officer. For in-house work, the Safety Officer approves the plan. For contractor work, the SSHP is approved by the contractor and accepted by the Contracting Officer's Representative based on input from District technical staff.

### **7.2. Technical Project Planning Process:**

The following sections describe the Corps management approach to ensure quality in the planning of investigative projects that involve environmental data activities and technology programs. The foundation of the Corps planning process is described in Engineer Manual (EM) 200-1-2, Technical Project Planning (TPP) Process. This planning process is used for identifying project objectives and designing data collection programs at hazardous, toxic, and radioactive waste sites. TPP is similar to EPA's Systematic Planning Process (Guidance on Systematic Planning Using the Data Quality Objectives Process EPA QA/G-4, February 2006). It is a systematic process that involves four phases of planning activities to help insure that the

requisite type, quality, and quantity of data are obtained to satisfy project objectives. The components of the TPP Process are:

- Phase I, Identify Current Project – The initial phase brings together the stakeholders to identify the project and document individual goals for the project from each project stakeholder, identify critical issues, sources of uncertainty, and constraints. As a group, work to define the project consensus goals, and both short- and long-term project objectives.
- Phase II, Determine Data Needs – This phase determines the decision-making applied to site. When determining the environmental data needed for a project, the definition of Environmental Data will be referenced from ANSI/ASQC E4 and EPA policy as follows:
  - **Environmental data:** Any measurement or information that describe environmental processes, location, or condition; ecological or health effects and consequences, or the performance of environmental technology. Environmental data include any information collected directly from measurements or obtained from any other sources (i.e., existing/secondary data) such as those compiled from data bases, data reports, literature, surveys, or produced from models.
- Clarify all applicable media impacted and known environmental issues to determine the data's use and interpretation scenario, and data needs listing. Establish full data needs statements, to include contingency actions and quality of data appropriate for the expressed intended uses. When determining the environmental technology that is applicable to a contaminant or project, the definition of Environmental technology will be referenced from ANSI/ASQC E4 and EPA policy as follows:
  - **Environmental technology:** An all-inclusive term used to describe pollution control devices and systems, waste treatment processes and storage facilities, and site remediation technologies and their components that may be utilized to remove pollutants or contaminants from or prevent them from entering the environment. Examples include wet scrubbers (air), soil washing (soil), granulated activated carbon unit (water), and filtration (air, water). Usually, this term applies to hardware-based systems; however, it also applies to methods or techniques used for pollution prevention, pollutant reduction, or containment of contamination to prevent further movement of the contaminants, such as capping, solidification or vitrification, and biological treatment.
- Phase III, Develop Data Collection Options – This phase is designed for planning the sampling layout, density and design. The PDT will outline field observations or field data interpretation scenarios that can apply, and brainstorm contingency actions for sampling project media, application of laboratory analysis to satisfy the data needs identified during Phase II.

- Phase IV, Finalize Data Collection Program – During this phase, the TPP team finalizes a data collection program that best meets the customer’s short- and long-term needs within all project and site constraints.

### **7.3 Management of Planning Process:**

**7.3.1 Applicability of the Planning Process** - The TPP Process is required when initially planning any activities at a site including field investigations, design, construction, operation and maintenance, or long term monitoring.

**7.3.2 Roles and Responsibilities** - The TPP process requires a multi-disciplinary team of personnel consisting of personnel representing the customer (EPA), Corps and the Contractor.

- Customer (EPA). The customer is the agency or sponsor who is funding the project and is responsible for completing work at the site.
- Customer PM (RPM) - As the customer’s representative, the RPM is the customer’s primary decision maker for all site decisions and activities and is a key member of every TPP team. The Omaha District PM will maintain a continuing dialogue with the RPM to review the progress, schedules and costs, and the results of investigations or changes in the project.
- Corps Project Personnel. The Corps PDT members and their roles and responsibilities follow:

Project Manager (PM) - is responsible to the District Commander for the overall management of the project. The PM coordinates directly with the customer (EPA) and is the leader of the Corps project team. Within the TPP process, the PM and PDT are responsible for leading the team’s TPP efforts, progressing towards site closeout and meeting all reasonable customer expectations.

Resident Engineer (RE) - has overall responsibility for Quality Assurance of the construction, and if EPA has the Corps perform O&M, the RE could be assigned responsibility for O&M (operation and maintenance) projects. The RE is responsible for monitoring contractor quality control (CQC) activities and taking appropriate action with the contractor to assure compliance with the quality control clauses of the contract.

Project Delivery Team (PDT) - is responsible for supporting the PM during TPP efforts, documentation of TPP memo, QAP, and the overseeing of field investigative, technical design and LTM activities, as applicable. The PDT support ensures the technical aspects of scopes of work are adequate to provide information/services necessary to complete the project to standards developed by EPA and the project team.

- Contractor Project Personnel.

Project Manager – The Contractor’s PM is responsible for the management and execution of all activities in accordance with the approved statement of work (SOW), approved work plans, and federal, state, and local laws and regulations.

Contractor Quality Control (CQC) System Manager – has the authority for ensuring the implementation of the Contractor Quality Control Plan (CQCP) as it applies to all design, construction, sampling, testing, monitoring, and analysis performed for the duration of the project.

**7.3.3 Level and Type of Planning** - During Phase I, the TPP team identifies the current project and the project objectives to include the identification of the contaminants of concern. Phase II is designed to ensure that all data needed to satisfy a site’s project objectives are identified. The determination of data needs is an iterative process involving the data user perspectives of risk, compliance, remedy, and responsibility to identify the range of data required.

- ☐ Evaluate Use of Existing Data. Before defining new data needs for a project, the team should evaluate the quality and potential usability of existing data to determine whether additional data are required. It should be noted that existing data rarely has sufficient QC details to properly verify or validate the accuracy or precision of that data. Temporal changes may also have occurred. Therefore it is likely considered data of unknown quality or may not be representative of current conditions. Data of unknown quality or older data (>5 years) is limited to qualitative use in establishing a preliminary CSM for the project, or initial hypotheses. Primary objectives of the project will be to confirm by sampling and analyses the initial CSM / hypotheses, with current data of known quality that meets the quality requirements based on that use.
- ☐ Define Data Needs. This effort must focus on establishing data need requirements of risk (evaluation of risk to human health or the environment), compliance (confirm against cleanup standards), remedy (evaluate remedy or specific technology application, remedial technologies pros/cons/application/progress/optimization), or responsibility (evaluate other potentially responsible party issues). Specifics are developed for each of these data needs and based on the data use, including each media type, contaminants of concern, chemical concentrations of interest and the number of samples required to satisfy the project objectives.
- ☐ Document Data Needs. Documenting data needs is a critical TPP activity that facilitates successful project execution. Site information worksheets are typically prepared that address the following:
  - ☐ What data is needed (contaminants of concern)?
  - ☐ Who needs the data?
  - ☐ What is the intended data use?
  - ☐ What media is impacted?
  - ☐ To what degree is it impacted, with gradients / variability of the CSM (conceptual site model) to support the evaluation of applicable remedial technologies?
  - ☐ What was the expected distribution of contamination and possible presence?

- ☐ What is the level of density of samples to determine remedial technologies application?
  - ☐ Where is the area of interest or desired sampling locations and depths for a reasonable exposure scenario or application of remedial cleanup options?
  - ☐ What sampling density supports reasonable project decision-making?
  - ☐ Is a low, moderate, or high density of information needed in targeted areas? Or in general regions of the site?
  - ☐ Are field techniques available to support desired density or feedback for established contingencies?
  - ☐ Are field observations applicable for the matrix and media potentially impacted?
  - ☐ Establish general logic for interpreting field observation scenarios, occurrence of odors or use of other screening tools, and any applicable thresholds.
  - ☐ Define contingencies that result from observations of contamination?
  - ☐ Define procedures for targeting samples for laboratory analyses based on field observations, field data, random or systemic sampling patterns, etc.
  - ☐ What number and frequency of samples is required to satisfy the intended use?
  - ☐ What is the reference concentration of interest or other performance criteria?
  - ☐ Is a high level of quality data needed? For what compounds?
- ☐ Constraints. Existing site information should be reviewed to identify site constraints that may affect project planning and execution. These efforts should include review of administrative, technical, legal and regulatory issues.
- Administrative Constraints. Effective planning requires that the TPP team address the customer's schedule requirements and site budget. The team must incorporate all of the customer's short- and long-term schedule milestones from project initiation to site closeout. In addition, the customer's budget constraints must also be included in project planning. The team needs to understand the customer's desired investment and perception of anticipated costs. If the customer's schedule or site budget changes, the changes need to be documented and forwarded to the team. The team should be informed when funding for site activities is available and what levels of funding are programmed for the next several years. Project execution options should be developed in line with funding obligations and within all funding limitations.
  - Technical Constraints. Each member of the TPP team should consider technical aspects of site activities that may affect project planning and execution. Unanticipated technical constraints may result in ineffective data collection programs, misrepresentation of site conditions, and actions that are unnecessary or unsuccessful.
  - Legal and Regulatory Constraints. The most significant regulatory constraints usually involve the primary regulatory process for a site; the applicable or relevant and

appropriate requirements; and any agreement, permit, orders, or record of a notice of violation.

- ☐ Preparation, Review and Approval of Planning Documents. The process, roles and responsibilities for preparation, review, and approval of planning documents (e.g., project specific Project Management Plans, QMPs, QCPs, UFP-QAPPs) are described in detail in Chapter 1, Management and Organization. Planning documents specific to the TPP process can include:
  - ☐ Phase I Memorandum for Record (MFR). The purpose of the MFR is to document the team's findings and decisions during Phase I. The MFR describes the current project and associated project objectives, customer's goals, and site constraints and dependencies. The PM is responsible for an independent technical/management review to ensure that the MFR is effective and complete.
  - ☐ Phase II Site Information and Data Need Worksheets. Site information worksheets and data need worksheets are developed during Phase II to document data needs based on risk, compliance, remedy and responsibility perspectives. In addition to a technical team member review, the PM should have an independent technical review of the data need worksheets to insure that each project objective has been considered and related data need considerations have been made.
  - ☐ Phase III Sampling and Analysis Planning Worksheets. Sampling and analysis planning worksheets are prepared during Phase III to document the proposed sampling and analysis methods and the data collection options. The PM is responsible for insuring that a technical review is conducted to ensure that all data needs were appropriately incorporated within a data collection option.
  - ☐ Phase IV Data Quality Objective (DQO) Statements. The DQOs are the formal documentation of the data quality requirements resulting from the TPP process. The DQO statements should be reviewed by either project or independent personnel to ensure each DQO is complete and implementable. The DQO is a comprehensive project-specific statement that includes the following data quality requirements.
    - ☐ Intended Data Use
    - ☐ Data Need Statement Requirements
    - ☐ Contingency Actions or Applicable Decision Logic
    - ☐ Appropriate Sampling and Analysis Methods
- ☐ Project Planning Document and UFP-QAPP generation, review and approval. Minimum qualifications of personnel and the environmental laboratory shall be determined and documented in project contract documents and verified in project planning documents.



The contractor awarded the contract will work with the Corps PDT and EPA RPM through the technical project planning and DQO process, documenting agreements directly into the project documents, such as the UFP-QAPP. Based on the PDT and stakeholder feedback, the contractor will submit draft versions of the project planning documents, including the UFP-QAPP for review by the Corps PDT, and the EPA Region 8.

- Implementation and Control. During the implementation the contractor is typically responsible for ensuring all QC procedures are implemented and documented. The Corps PDT takes on a QA role and ensures that all work performed is of acceptable quality, and that the data, decisions, and work products are executed fully, scientifically defensible, properly documented, of known quality, and meet project objectives.
- Data Assessment and Feedback. Analytical data collected on behalf of EPA is validated according to the OSWER Directive 9200.1-85, *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* and associated Guidance Document EPA 540-R-08-005, found at: <http://www.epa.gov/superfund/policy/guidance.htm>. The Corps project chemist coordinates through the PM/RPA and with the EPA QA chemist as necessary throughout this data collection and validation process. Prior to data being made available to the PM or EPA RPM for decisions, usability is fully assessed and the appropriateness of that data confirmed by the application of data validation procedures. As the data validation and usability are assessed, the team is regularly informed of any issues resulting from sampling error and/or contaminant spatial variability or unique distribution patterns that might warrant PDT consideration and possibly lead to changes in the direction of an investigation or a remedial action process, to a specific corrective action to remedy a deficiency.
- The Corps and contractor personnel are responsible for documenting any deficiencies, recommending changes to the program. Depending on the phase of the project, data problems can be indicative of matrix interference from contaminant or media characteristics or an operational or instrumental barrier. Deficiencies must be discussed among the TPP team for consensus on its impact, and what needs to be addressed, documenting any corrective actions taken as appropriate.

## 7.4 Elements of Planning Process:

**7.4.1 Quality System** - Generally, Corps defines overall quality as ensuring that environmental services and products meet the agreed upon requirements of the customer and appropriate laws, policies, and technical criteria, on schedule and within budget.

For Superfund projects, quality will be incorporated into all aspects of the project through the Technical Project Planning Process, as described in

- EM 200-1-2 (similar to EPA's 7-step data quality objectives (DQO) process)

- ER 1110-1-8157, Geotechnical Data Quality Management for Hazardous Waste Remedial Sites, October 2002
- ER 1180-1-6, Construction Quality Management, September 1995

**7.4.2 Quality Assurance Project Plan (UFP-QAPP)** - In accordance with EPA Orders CIO 2105.0 and CIO 2106.0, and the Uniform Federal Policy for Quality Assurance Project Plans, <http://www.epa.gov/fedfac/documents/qualityassurance.htm>, Corps prepares a Quality Assurance Project Plan (UFP-QAPP) for environmental data activities performed at the project site or ensures the UFP-QAPP is prepared properly by a contractor. The original (signed and approved) QAPP will be kept by the Project Manager in the project file.

If prepared in-house, the UFP-QAPP will be developed by the Corps PDT based on results of the technical project planning meetings and background research preparations, and is submitted in a draft form for internal review. Reviewers are selected to be responsible for performing an independent quality control technical review of the products. The EPA also reviews and approves UFP-QAPPs before work involving the collection, production, or use of environmental data may begin. The EPA Region 8 QA Manager is the approval authority for UFP-QAPPs developed under interagency agreements. Field work for in-house projects will be performed by Corps PDT and support staff. Any revisions to the UFP-QAPP that are necessary during work execution shall be concisely documented (per affected worksheets only) and expeditiously routed through the same review and approval process of draft UFP-QAPP.

For UFP-QAPPs developed by contractors, the contractor completes a quality control review of the product prior to submitting the product to the Corps. Corps PDT technical staff subsequently performs a quality assurance review of the contractor's product. When issues impact the quality of the work, the PDT shall notify the PM, the Superfund Program Manager, and Corps Omaha District Superfund Quality Assurance Manager, as needed. The Project Manager is responsible for Corps approval signature on contractor developed UFP-QAPPs. The EPA also reviews and approves UFP-QAPPs before work involving the collection, production, or use of environmental data may begin. The EPA Region 8 QA Manager is the approval authority for UFP-QAPPs developed under interagency agreements. After execution of work begins and based on feedback from others, the Corps PM is responsible for initiating with the contractor any revisions to the UFP-QAPP through the Contracting Officer, as necessary. All revisions to the UFP-QAPP that are necessary shall be concisely documented (per affected worksheets only) and expeditiously routed through the contractor's QC review, with subsequent Corps QA, and EPA review and approval process of draft UFP-QAPP.

## **8.0 MANAGEMENT OF WORK PROCESS IMPLEMENTATION**

### **8.1 Procedures for Implementation in Accordance with Plans:**

The individual Project Delivery Team (PDT) members who are actually performing the work/activities have the most responsibility for ensuring that work proceeds according to the approved planning, technical, and quality documents. The individual team members are defined as either Corps in-house employees or contractor employees. As defined earlier, the individual team members are responsible for:

- ☐ Delivering a quality product
- ☐ Taking an active role to ensure the quality objectives are incorporated into the project
- ☐ Monitoring the respective discipline's quality of their work
- ☐ Keeping the commitments for completion of their portion of the project as documented in the pertinent quality and technical documents

There is a level of comfort that appropriate procedures are likely to occur based on the fact that exceptional control and proper distribution of project documents is maintained, and the individual team members are well qualified and trained as outlined in section 3.0 of this plan. Multiple actions are undertaken in order to confirm work is proceeding as planned and team members are fulfilling their responsibilities. The first step is routine oversight by the Project Manager, PDT members and/or Resident Engineer depending on the type and nature of the work being accomplished. For example, work that is investigative or design in nature would have significantly more oversight by the PDT and Project Manager. Construction/remediation type activities would have more oversight by the Resident Engineer and Project Manager. Routine oversight will occur in many different forms to include routine daily communications (i.e. phone or personal interaction, email, etc.), impromptu meetings, and regularly scheduled team meetings. During these communications, discussions occur on the status of the activities and comparisons of the work completed to the established plans and standards. Onsite Corps QA staff shall verify all contractor and field personnel have current documentation available. Ensure workplans (including design documents, quality documents, and procedures) approval dates are verified as current; and all outdated documents identified are communicated back to the Project Manager. The PM is responsible for distributing all updates of project documents, and taking appropriate corrective actions through the Contracting Officer as necessary to ensure the quality of the work is maintained. The level of routine oversight that occurs will vary project-to-project depending on the complexity, nature and type, and sensitivity (political, schedule, budget, etc.) of the work or activity. Special emphasis will be placed on assuring that regularly scheduled team meetings are held. The "team" means all parties involved in the project from EPA all the way down to key subcontractors. Past experience has shown that these team meetings have been a key to the success of projects as they allow for open communication between the team members and provide a good forum for oversight of activities to be accomplished.

Aside from oversight from the Project Delivery Team (PDT) management structure, individual team members will also have oversight and input from their immediate supervisors or team leaders. The supervisors and team leaders will be fully cognizant of the commitments made by their employees and will review and oversee their work. The level of this oversight will occur on an as needed basis as deemed necessary by the PM, supervisor or team leader, or based on the experience level of the employee.

There will also be checks/reviews of ongoing work, these include actions such as review of and comment resolution for work products, independent technical reviews, three-phase inspections of construction work, and QA Audits or Inspections. The Project Manager, PDT members, and Resident Engineer will assure that these reviews are scheduled and take place as planned. The Project Manager will also closely track the project schedule and budget using the Corps automated information management systems (P2 and CEFMS). Input on the schedule will be sought from the rest of the PDT to assist the Project Manager in the tracking efforts. Identification of significant deviations from the current documentation or procedures, or from the established project budget and schedule, will assist greatly in determining if work is being accomplished according to approved plans and in a quality manner. The Project Manager will then work with the team to resolve the issues and find ways to get the project back on track not only from a schedule and cost standpoint, but from a quality perspective as well. The Project Manager, PDT and Resident Engineer will be informed of any corrective actions identified through the oversight procedures identified above. It is the responsibility of these key team members to assure that appropriate actions are taken to rectify the identified issue and bring the product or service back to the quality level that is required.

## **8.2 Managing Quality Implementation Through the use of Standard Operating Procedures:**

Standard operating procedures (SOPs) will be prepared in accordance with EPA QA/G-6, *Guidance for the Preparation of Standard Operating Procedures (SOPs) for Quality-Related Documents*. SOPs are used where appropriate to facilitate consistency in the quality and integrity of the product or activity. The approved planning, technical, and quality documents will identify when SOPs are necessary and will outline the steps within the SOP. SOPs will be required when one or more of the following criteria are met:

- ☐ When there are multiple detailed steps required
- ☐ When results must be within a specified accuracy and/or precision level
- ☐ When there is high turnover of workers
- ☐ When there is a need to document the steps followed for the record, such as for repeatability and continuity
- ☐ Where the consequences of nonconformance are significant
- ☐ When the results must be comparable between different workers
- ☐ When activities pose a significant safety risk to workers

The use of SOPs will of course vary greatly depending upon the type and nature of work being accomplished. As a result, it is not useful to have this document identify all of the instances when SOPs will be required. However, several of the more frequent and significant activities that will require SOPs are discussed in the following sections.

**8.2.1 Environmental, Physical and Chemical Data Activities** - The collection of data has been addressed in several locations throughout this document. This is one activity that tends to happen over a wide range of the different project phases (RI/FS, RD, RA, etc.) of a Superfund project and is always a significant project issue. Data activities are a prime example of when critical sampling and analytical SOPs need to be developed and implemented as attachments to the UFP-QAPP. The key planning and quality document pertinent to data activities is the UFP Quality Assurance Project Plan (QAPP). SOPs are an integral part of the UFP QAPP and are always included for the pertinent tasks, physical field testing and the actual collection and analyses of samples.

**8.2.2 Safety** - Safety is a key concern of Corps and many of the activities that occur on the Superfund Program are inherently dangerous. The prevention of injuries and deaths starts with the preparation of a Site Safety and Health Plan (SSHP). The pertinent guidance and regulations relevant to the preparation of the SSHP have been previously identified in this document. The SSHP includes a key formal SOP under another name, the Activity Hazard Analysis (AHA) or Accident Prevention Plan (APP). The AHA and APP outlines the activities that will be performed, the dangers and/or risk associated with these activities, and the steps that need to be taken to mitigate the danger.

**8.2.3 Designs** - Completion of Remedial Designs whether completed using In-House or Contractor resources will adhere to the pertinent Corps Engineering Regulations and/or Engineering Manuals. These guidance documents spell out in detail the steps required to complete design aspects of projects. These documents will be followed where applicable.

**8.2.4 O&M Activities** - Operation and maintenance of various remedial processes, whether tasks are related to insitu treatment technologies or exsitu treatments, they can have routine activities required for successful operations. Operation and maintenance manuals are written for these activities and are meant to be followed by the equipment operators. The manuals spell out in detail the steps required to operate the systems and to regularly maintain them. The activities described above are not the only activities that will require SOPs. These activities were described to show that SOPs are currently being used. Any activity that meets the criteria listed above in the beginning of this section will have SOPs developed.

**8.2.5 When SOPs are not required** - There will also be many instances where activities are being completed that do not lend themselves to the use of SOPs. These activities will tend to be the non-routine and do not reoccur on a regular basis. The level of supervision on an activity will also directly influence the need for or lack thereof of SOPs. The more supervision involved, the less likely SOPs will be needed.

**8.2.6 Development and Revision of SOPs** - SOPs will be developed and revised as necessary depending on the nature and type of activities being performed. The new SOPs will have the following elements:

- a) Title Page and Table of Contents
- b) A procedures section to address such items as scope and applicability, definitions, warnings and cautions, personnel qualifications, materials and equipment, calibration/benchmarking requirements, troubleshooting, data analysis procedures, quality assurance/quality control procedures, acceptance criteria and corrective action requirements, and responsibility.
- c) Reference Section – List of other documents, procedures, regulations, manuals, and industry standards that interface with the SOP.

A person or team specifically assigned to the task with the appropriate background and experience will develop the SOPs. The level of internal review and approval process will vary depending on the topic the SOP addresses. An SOP being applied to a project would typically be attached to a UFP-QAPP or other project workplan. These draft documents are reviewed and approved by a relevant subject matter expert or reviewer along with the UFP-QAPP process. All signatures and dates established and managed for the approvals of the UFP-QAPP apply to the SOP attachments also. The reviewers would typically reference EPA, Corps regulations, or other Federal or State laws, industry standards or best practices that support the generation of review comments or suggestion for modification and approval of the SOP. Subject matter experts within the Corps (at our Center of Expertise or within another District office) would be consulted in the event of a unique situation or requirement. Newly revised SOPs will be issued as revisions to project plans if they are project specific. SOPs that are applicable to many projects or programs will be issued as District policy or if broadly based, issued as “Engineer Regulations”.

**8.2.7 Management of SOPs** - SOPs come in many different forms as described in the preceding sections. As a result, how they are managed will be form dependent. If they are project specific, the SOP will be an attachment to the approved UFP-QAPP or other project workplans. The project plans are copied (or sent electronically) and distributed to the Corps PDT and field personnel teams. SOPs that are programmatic in nature are/will be stored and maintained on the QMS website, which resides on the District’s intranet. The Omaha District QMS Manager and support staff are responsible for and manage the QMS website. They ensure that all documents are in the QMS website are current and replace the older versions as necessary. Engineer Regulations, Circulars, letters, etc. are maintained on national Corps data bases accessible by all employees and most contractors.

Triggers for SOP revisions or withdrawal include changes or upgrades in equipment or processes, policy variations, or changes in regulation. Many of these issues may be encountered that trigger

the need to change an SOP attached to an approved UFP-QAPP. The basis for the SOP revision will be documented, along with the edits, review comments, final resolution, and approval of the SOP in the same manner as the initial UFP-QAPP approval. If no triggers are encountered, SOPs will undergo a minimum annual review along with the UFP-QAPP or other applicable project workplans updated for approval as necessary. The revision process for UFP-QAPP, workplans and SOPs will be coordinated through to approval and distributed by the Project Manager in the same manner as the original (signed and approved) UFP-QAPP / workplans. The Corps PM is also responsible for initiating with the contractor any revisions to the UFP-QAPP or SOP through the Contracting Officer, as necessary. All revisions to the UFP-QAPP that are necessary shall be concisely documented (per affected worksheets or SOPs only) and expeditiously routed through the contractor's QC review, with subsequent Corps QA, and EPA review and final approval process of draft UFP-QAPP.

Obsolete SOPs will be removed from network resource locations and archived in a marked folder. The prior use of "now obsolete" SOPs will rely on the archival of the project documents within the administrative record. Obsolete SOPs will be archived electronically in the QMS system and District network (for potential future retrieval).

### **8.3 Work Process Implemented Through Contracts and Other Assistance Agreements:**

The majority of work completed by others on behalf of Omaha District is through contractors. Assistance is provided at times from some of the other Corps Districts nationwide who may specialize in a particular area of interest or type of work.

**8.3.1 Work Process Implemented through Contracts** - Contractors provide Omaha District with a wide array of different services and products that span all the different phases of a Superfund project. The list of different services and products is too extensive to be identified completely in this document. The processes and procedures to obtain any service or product required by Omaha District and EPA are communicated to our contractors through project statements of work (SOW), specifications, and drawings. These documents outline in detail what is required of the contractors including what level of quality is to be achieved and the need for the development of project plans. The SOW, specifications, and drawings outline the same guidance documents, references, regulations, manuals, and industry standards referenced throughout this QMP. Essentially our contractors are required to follow the same rules we follow in planning and implementing the work. The project plans that the contractors are required to develop must be completed before any project activities can be initiated. The plans that are developed include but are not limited to the Work Plan, UFP-QAPP, Contractor Quality Control Plan, SSHP, and other Plans as required by the project, and Project Schedule. These plans outline the procedures and methods the contractor will use to complete work. The project team reviews these documents with each individual reviewer focusing on the area of their technical expertise. It is the responsibility of each individual reviewer to insure that the SOPs identified for their area of responsibility reflect the latest EPA, industry, and Corps requirements, as applicable. Outside assistance is utilized when necessary if specialized requirements are

required. All contractor plans, including UFP-QAPPs are reviewed and approved by Corps, as well as the EPA Region 8, prior to the start of work involving the collection, production, or use of environmental data may begin. Each Task Order is assigned at least one specific point of contact from Omaha District who oversees and manages the contractor's efforts. The staff assigned as the Contract Manager depends on the type of work being completed by the contractor and the phase of the project. For example, design related work would be managed by the Project Delivery Team or the Project Manager and Remedial Action work by the Resident Engineer. Regardless of who is the primary lead for the Task Order, the Lead is required to include the appropriate team members to assist him/her in overseeing the contractor's efforts. For example, the Corps Project Chemist that reviewed the draft UFP-QAPP, can be called upon to oversee the execution of the UFP-QAPP, including oversight of the actual sample collection and analyses. In other words, the Task Order Lead brings in the required expertise to ensure the contractor is conducting the work correctly and in accordance with the SOW, specifications, and drawings. The Task Order Lead is also responsible for making sure the contractor completes the work within the established budget and schedule.

**8.3.2 Work Process Implemented through Omaha and other Corps Districts** – Omaha District has a number of experts, Centers of Expertise and Design Centers, including the Military Munitions Design Center (MMDC), Protective Design Center, the Hydrant Fuels Center of Expertise, etc. Those who have specialized areas of emphasis are called upon at times to assist in completing related project activities. Any support to EPA Region 8 or Superfund that is provided from the other Corps Districts, Centers, Divisions, or Headquarters on behalf of Omaha District will be required to comply with the requirements established within this QMP. To obtain other Corps expertise, the Omaha District will write a project statement that is provided to the other district outlining the activities we would like supported. The other district assigns project team members with the appropriate expertise who are then integrated into the project team. This arrangement allows Corps employees to participate as "virtual" team members and follow the same set of rules and regulations pertaining to quality and the implementation of work. The other Corps district team member is then inherently following the same guidelines spelled out in this QMP, the same as the Omaha District project team members. The Corps has gone to great lengths through its Project Management Business Process to make project teams virtual regardless of the team member's location. This makes the team seamless to the client, in this case EPA.



## **9.0 ASSESSMENT AND RESPONSE**

This Section outlines the manner in which assessments of This Superfund Quality Management Plan will be both identified and performed. Omaha District QMS Process 310, Internal Assessment process documents the internal assessment procedure for the NWO QMS. In accordance with guidance from USACE Internal Review and ISO Standards, the terms “assessment” and “assessor” replace “audit” and “auditor.” These assessments are to be performed to evaluate conformance with both the technical and procedural requirements published in Quality Management System (QMS) Operational Processes (and Enterprise Standards and Supplemental Processes), as well as other quality related plans, guidance and regulations.

### **9.1 Identification and Planning of Assessments:**

According to QMS 310, section 7.1, NWD assessment schedules will be published each year and, at a minimum, will indicate what NWO area(s)/process(es) will be assessed, who will perform the assessment, and when the assessment will be performed (by month). Once published, the offices/areas being assessed will provide NWD a point of contact and a list of personnel who should be interviewed as part of the assessment. NWO will also develop and publish a list of proposed internal assessments for the upcoming year. That list will include the QMS process(es) to be assessed, the name of the Internal Assessor assigned to each assessment, and the timeframe scheduled for the assessment. The assigned Internal Assessor and/or Lead Assessor will provide the list to the Functional Leader of the office whose process is being assessed, who, in turn, will provide a point of contact and list of personnel to be interviewed as part of the assessment. Additional assessments may be scheduled and performed at any time based on identification of areas for improvement from employees, customer input, nonconforming products, lessons learned, and/or management review. Refer to paragraph 9.0 (Attachments) for some of the documents (Assessment Checklist, Findings Worksheet, and Internal Assessment Report) that may be used for Internal Assessments in NWO.

Various documents identify the type of assessments that will be carried out. These documents include the Omaha District’s Quality System and project specific plans (Project Management Plan, Quality Control Plan, Quality Assurance Plan and Quality Assurance Project Plan), as well as Engineer Regulations (i.e., ER1110-1-12). Assessments include the Superfund Program Assessment, or Superfund project level efforts that focus on a specific area (sample analysis). Other assessments include those at an organizational level where a Branch/Section within the District will review their operating procedures, and District wide assessments that look at the entire organization’s procedures as they relate to quality.

The project’s quality assurance /quality control (QA/QC) process will routinely check components of the quality system for compliance with approved plans. A comprehensive project level assessment is generally carried out only when a problem is identified by the standard QA/QC process. The need for such an assessment would likely be identified by a member of the

project team through their project related QA/QC duties. The Project Manager would be responsible for assembling a group with the appropriate background and experience to look into the issue. This group would likely be Omaha District staff although other expertise from within Corps can be called in if needed to address special circumstances.

Organizational assessments of a Branch/Section's operating procedures are carried out on an annual basis, or as needed identified through quality indicators such as a programmatic, quality system, internal or external audit, a project after action report, or other reporting mechanisms that highlight a "lesson learned" issue that appears to be something more than an isolated, onetime event. The Branch management staff would be responsible for assembling a team to carry out the assessment and recommend changes. The Division Chief would then be responsible for seeing that the recommended changes were implemented.

Tools used in assessments of contractors include project audits, interviews, and checklists that are tailored to the issues being addressed. At the project level an audit may be focused on a specific issue, such as a field or laboratory procedure, or the quality of a final product. Interviews and checklists at the project level could be focused on a specific activity or to the comprehensive remedial operation or effort. Assessments are routinely associated with the acquisition of representative samples and the use of environmental data on that project

Results from the Superfund Program assessment using the appropriate forms as described and provided in QMS 330 NWO by the Lead Assessor to the Functional Leader, Process Owner, Senior Leader and District QMS Manager. Follow up Assessments are initiated by the person responsible for ensuring the accurate use of the process assessed, and will take prompt action to close any nonconformances and advocate the success of conformances. The Internal Assessor responsible for documenting the nonconformances will ensure nonconformances from the assessment are closed in an agreed-upon timeframe. Those nonconformances not closed within the agreed-upon timeframe will be identified to Senior Leaders. Internal responsible individuals are to make the appropriate changes. These assessment results are also provided to the management staff (project, Branch/Section, District) for both awareness and to insure that the appropriate action is taken with appropriate follow-up to assure no recurrence of the problems identified by the assessment. The information is also shared with other project and management staff not directly involved as part of the QMS lessons learned system.

## **9.2 Design and Implementation of Assessments:**

The primary source for creating questions for Internal Assessments is ISO 9001:2008. Assessors, when developing checklists, should ensure that assessments cover the various sections within ISO 9001, as shown in the list below. (Note: Functional Leaders and Process Owners will primarily focus on Section 7, but assessment checklists must also include questions covering Section 6.2 and Section 8. Assessors MUST cover Section 6.3 when assessing Operations and Maintenance processes.) Several Districts have already developed master lists of questions

based on ISO 9001:2008. NWO Internal Assessors may choose to review those lists in developing lists of assessment questions for NWO processes.

ISO 9001:2008 Sections:

Section 4. Quality management system

- 4.1 General requirements
- 4.2 Documentation requirements
  - 4.2.1 General
  - 4.2.2 Quality manual
  - 4.2.3 Control of documents
  - 4.2.4 Control of records

Section 5. Management responsibility

- 5.1 Management commitment
- 5.2 Customer focus
- 5.3 Quality policy
- 5.4 Planning
  - 5.4.1 Quality objectives
  - 5.4.2 Quality management system planning
- 5.5 Responsibility, authority and communication
  - 5.5.1 Responsibility and authority
  - 5.5.2 Management representative
  - 5.5.3 Internal communication
- 5.6 Management review
  - 5.6.1 General
  - 5.6.2 Review input
  - 5.6.3 Review output

Section 6. Resource management

- 6.1 Provision of resources
- 6.2 Human resources
  - 6.2.1 General
  - 6.2.2 Competence, training and awareness
- 6.3 Infrastructure
- 6.4 Work environment

Section 7. Product realization

- 7.1 Planning of product realization
- 7.2 Customer-related processes
  - 7.2.1 Determination of requirements related to the product
  - 7.2.2 Review of requirements related to the product
  - 7.2.3 Customer communication
- 7.3 Design and development
  - 7.3.1 Design and development planning
  - 7.3.2 Design and development inputs

- 7.3.3 Design and development outputs
  - 7.3.4 Design and development review
  - 7.3.5 Design and development verification
  - 7.3.6 Design and development validation
  - 7.3.7 Control of design and development changes
  - 7.4 Purchasing
    - 7.4.1 Purchasing process
    - 7.4.2 Purchasing information
    - 7.4.3 Verification of purchased product
  - 7.5 Production and service provision
    - 7.5.1 Control of production and service provision
    - 7.5.2 Validation of processes for production and service provision
    - 7.5.3 Identification and traceability
    - 7.5.4 Customer property
    - 7.5.5 Preservation of product
  - 7.6 Control of monitoring and measuring equipment
- Section 8. Measurement, analysis and improvement
- 8.1 General
  - 8.2 Monitoring and measurement
    - 8.2.1 Customer satisfaction
    - 8.2.2 Internal audit
    - 8.2.3 Monitoring and measurement of processes
    - 8.2.4 Monitoring and measurement of product
  - 8.3 Control of nonconforming product
  - 8.4 Analysis of data
  - 8.5 Improvement
    - 8.5.1 Continual improvement
    - 8.5.2 Corrective action
    - 8.5.3 Preventive action

The Internal and Lead Assessors will conduct the analysis during the assessment to determine opportunities for Best Practices. (Note: If NWD is conducting an assessment as part of a larger cyclical assessment of the same procedures across more than one District, then the analysis of the assessment will be conducted after assessments at all Districts have been conducted. A Best Practice cannot be identified from conducting only one assessment.) The scope and complexity of assessments (either at the organizational or project level) are tailored to both the level of the organization being addressed as well as the specific focus (the overall quality management program or a component of the program). At the project level the need for an assessment will have been identified through the QA/QC process typically highlighting a specific issue. This type of assessment would be very focused on addressing that problem. Organization wide assessments that are carried out on a periodic basis have a structured format with the objective of looking at the overall quality management process to insure that appropriate steps are being taken, including the preparation of appropriate program and project level documents,

documentation of compliance with program level plans, QA/QC documentation at the project level, and records management at both the program and project level. Project and program level documents will be used in conducting assessments as well as interviews with project/District staff involved in the process. A written report of the assessment will be prepared and shared with all involved as well as senior management within the District. This report will provide the assessment finding, both recommended and required actions, and will identify the follow-up process to insure that they are implemented.

The Omaha District will assess the adequacy (effectiveness) of the Quality System established in this Superfund QMP at least annually. This assessment must be documented in a report with a copy provided to EPA. The report will include:

- ☐ Assessment of this Superfund QMP, determining whether it accurately reflects the current organization and the Quality System including identification of past and planned changes and revisions to the QMP, using the Region 8 QMP crosswalk (found at <http://www.epa.gov/region8/qa/R8-QMP-crosswalk%207-12-2011.docx> ).
- ☐ Documentation showing that the Quality System has been effectively implemented during the past year. This documentation needs to include a summary of the Omaha District management assessments of its Quality Management System, assessments by others, and any assessments of USACE contractors. The summary should include the following information for each assessment:
  - ☐ Organization and project which were the subject of the assessment,
  - ☐ Type of assessment performed,
  - ☐ Who performed the assessment,
  - ☐ When the assessment was performed,
  - ☐ General statement of assessment results and any corrective actions

### **9.3 Determination and Evaluation of Assessor Qualifications:**

All Superfund Program or Superfund Project Internal Assessors will complete, at a minimum, informal assessor training prior to conducting an assessment. Ideally, Internal Assessors will complete an ISO-certified Internal Assessor (or similar) training course. Functional Leaders are responsible for identifying NWO candidates for the two NWO Internal Assessors. The offices where the Internal Assessors are located will be responsible for budgeting for the required training and for ensuring that the training is completed. Basic assessor training for Internal Assessors and for Functional Leaders, Process Owners, and other staff who may be involved in internal assessments is available through the NWP Intranet site at <https://w3.nwp.usace.army.mil/training/>. The course is entitled “NWD QMS 310 Initial Auditor Awareness Training.”

Senior technical personnel and subject matter experts are selected on an as needed basis to perform quality assessments. Senior management within the District would select the leader of

an assessment team based on that individuals experience and technical background as it relates to the area being assessed. The assessment teams will consist of both project level and management staff as appropriate for the situation being addressed. Project level staff may be those directly involved in a project as well as an independent team of project staff if the first line management determines this to be an acceptable appropriate approach. Staff from the Division office typically conducts District wide assessments. All individuals involved in this process have the appropriate technical ability and experience within the organization to be familiar with the required operating procedures.

#### **9.4 Responsibility and Authority of Assessors:**

**Lead Assessor Roles.** In NWO, the Lead Assessor is the Chief, Internal Review—an individual with practical experience in auditing/assessments. Absent a Chief, Internal Review, this position can be filled by a Functional Leader, Process Owner, or anyone designated as a Lead Assessor, provided they have the required training.

##### **Responsibilities**

- ☐ Accept responsibility for all phases of the assessment
- ☐ Provide leadership and management during the assessment
- ☐ Possess the authority and responsibility for final decisions on assessment results
- ☐ Select assessment team members
- ☐ Make effective use of the skills of assessment team members
- ☐ Brief the assessment team
- ☐ Define assessment assignment requirements
- ☐ Prepare the assessment plan
- ☐ Prepare working documents
- ☐ Represent the assessment team
- ☐ Comply with applicable assessment requirements and appropriate directives
- ☐ Report critical nonconformances to the person/office being assessed
- ☐ Submit the final assessment report
- ☐ Report assessment results clearly, concisely, and without delay

**Internal Assessors Roles.** Assessors can be Functional Leaders, Process Owners, or anyone designated as Internal Assessors, provided they have training as an assessor in “ISO-like” environments.

##### **Responsibilities**

- ☐ Possess knowledge and skills to conduct an assessment
- ☐ Collect/analyze evidence relevant to the quality system (processes) being assessed

- ☐ Identify and document conformances in the required format
  - ☐ Identify and document nonconformances in the required format
  - ☐ Exercise objectivity and remain neutral
  - ☐ Identify issues that present potential for adverse impacts on the quality of products or services (issues that would require further investigation)
  - ☐ Communicate and clarify assessment requirements
  - ☐ Report assessment results
  - ☐ Cooperate/support the Lead Assessor
  - ☐ Ensure confidentiality; treat privileged information with discretion
  - ☐ Act in an ethical manner at all times
  - ☐ Conduct in briefs and out briefs of assessments
- Retain and safeguard documents pertaining to the assessments

**Senior Leaders Roles.** Senior Leaders for the management of the NWO QMS and Enterprise (HQUSACE) Standards (and/or NWD Supplements to those standards) are identified as the District Commander and the Corporate Board.

### **Responsibilities**

- ☐ Ensure proper oversight of the NWO QMS internal assessment process
- ☐ Promote conformance to established District, Regional, and HQUSACE QMS processes
- ☐ Provide and fund two trained QMS Internal Assessors (paragraph 7.2 describes training requirements for USACE QMS Internal Assessors)
- ☐ Require that their District be internally assessed annually
- ☐ Ensure (the District Commander) that NWO Senior Leaders are available, where/when appropriate, for interviews during assessments held by NWD staff
- ☐ Ensure prompt, effective responses from NWO staff to any nonconformances and subsequent corrective actions identified during assessments

The assessment team has the responsibility of conducting a thorough effort in accordance with the specific assignment. They have full access to all information required to complete their effort. They typically report to a senior manager responsible for the assessment. This manager would then provide the results of the assessment to the specific project team (if a project related assessment) or the appropriate organizational element. The entire management chain would then be responsible for implementing the recommendations/requirements that came out of the assessment.

### **9.5 Roles and Responsibilities of Contractors and Others in Performing Assessments:**

Contractor's performing work for the EPA Superfund Program is responsible for conducting assessments of their quality system. They are required to have an established quality

management system in place, which is verified and reviewed after contract award. The results of these assessments of the quality systems are available from the District per the requirements of the contract. Corps personnel have the quality assurance role for the contractor's work on specific project assignments. Project specific work plans are approved and ongoing work is checked for compliance with the contract and approved work plans.

- The project team is responsible for quality assurance on a project specific basis. District staff may perform assessments on a contractor's overall quality management system in rare circumstances. Such an assessment would be conducted only if significant issues developed that appeared to be unrelated to a specific project.
- Assessments of the contractor's performance are carried out on a daily basis when field work is ongoing. The District typically provides on-site quality assurance staff. The frequency of quality assessments on work being performed in the office is based on the submittal of work products and their review.
- Quality assessments are documented in various formats that include daily reports, review comments on specific work products, assessments specific to a focused evaluation of a procedure, audit reports and other documents tailored to the specific effort being assessed. These documents would typically describe the effort being assessed, the reason for the assessment, findings and recommended next steps. The level of documentation would vary with the significance of the work effort being addressed.
- The contractor would be required to address the findings of the assessment on a timeline that was appropriate to the problem. Items identified in the field might require immediate attention. Procedural and process issues might require and allow for a longer period of time. Generally the fix would need to take place prior to the next step in the project's work sequence to insure that the mistake or problem is not repeated.
- The District's PM and project staff would be responsible for insuring that any recommended changes are implemented. These findings would be documented in the daily (or periodic) quality reports prepared by the project staff.
- The Corps has a formal process for evaluating contractor performance with quality being a significant factor in this evaluation. The Contracting Officer has the final authority to resolve disputes with contractors, and are they or their appointed representatives having the responsibility of submitting an evaluation upon the completion of work efforts. The documentation compiled by the project team over the course of the project is used to support this evaluation.
- The District works with their contractors to resolve issues in a timely manner to insure quality work. The majority of the contracts we utilize are pre-placed with a 3-10 year period of performance. The contractor's incentive is additional work.

The formal dispute resolution process is included in all contracts but is rarely if ever needed due to the nature of the contractual relationship on this work.

Examples of Omaha District IA SOW language include the following paragraph, Resolution of Disagreements, and are stated as follows.



#### “Resolution of Disagreements

Should disagreements arise on the interpretation of the provisions of this agreement or amendments and/or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement or interpretation is not reached within 30 days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution.

If a dispute related to funding remains unresolved for more than 30 calendar days after the parties have engaged in an escalation of the dispute, disputes will be resolved in accordance with instructions provided in the Treasury Financial Manual (TFM) Volume I, Part 2, Chapter 4700, Appendix 10, available at <http://www.fms.treas.gov/tfm/index.html>.

If USACE and EPA cannot concur nor conditionally concur regarding any aspect of work associated with EPA and USACE activities under this IA, such disputes shall be resolved at the lowest level possible within EPA and USACE. In such instances, USACE district or division staff may sequentially elevate the matter to the Commander of the USACE district or division office that is managing the IA for resolution, and EPA regional staff may sequentially elevate the matter to the EPA R8 Regional Administrator that is managing the IA for resolution.”

#### 9.6 Documentation, Reporting, and Review of Assessments:

Type	Description	Location and/or Responsible Office	Record Media	Retention	Disposition
R	Internal Assessment Training Records	Functional Leader/Process Owner/QMS Manager, as appropriate	E and P	At least 3 years, but no more than 6 years	Destroy
R	Assessment Questions/Reports	Functional Leader/Process Owner/QMS Manager, as appropriate	E or P	At least 3 years, but no more than 6 years	Destroy
R	Assessment Schedule	Functional Leader/Process Owner/QMS Manager, as appropriate	E or P	At least 3 years, but no more than 6 years	Destroy
R	Assessment Summary Reports	Functional Leader/Process Owner/QMS	E or P	At least 3 years, but no more than 6 years	Destroy

		Manager, as appropriate			
R	Nonconformance Reports	Functional Leader/Process Owner/QMS Manager, as appropriate	E or P	At least 3 years, but no more than 6 years	Destroy
R	Corrective Action/Preventive Action Reports	Functional Leader/Process Owner/QMS Manager, as appropriate	E or P	At least 3 years, but no more than 6 years	Destroy

### Description of Terms.

Type:

R Record  
M Measurement

Record Media:

E Electronic  
P Paper

Documentation will be maintained for continued consistency with the EPA Policy to Assure the Competency of Organizations Generating Environmental Measurement Data Under Agency-Funded Assistance Agreements or Interagency Agreements. Assessments result in the preparation of summary reports that identify the objective, the steps that were taken, records reviewed (QMPs, QAP, QAPPs, etc.), and people interviewed. The reports also provide the findings and observations of assessments. Checklists or other items completed in advance of an assessment would also be included. The reports are reviewed by those directly involved as well as by the District's management team (specifically those involved in the specific area being assessed). The District's senior managers would assign responsibility for addressing the findings and observations of the assessment to a manager at the appropriate level of the organization. The District has periodic (generally quarterly) meetings where project and program specific issues are addressed. Progress toward the implementation of required changes identified by quality assessments would be tracked and reported at these meetings.

### 9.7 Response to and Follow-up After Assessments:

The person responsible for ensuring the accurate use of the process assessed will take prompt action to close any nonconformances and advocate the success of conformances. The Internal Assessor responsible for documenting the conformances/nonconformances will ensure nonconformances from the assessment are closed in an agreed-upon timeframe. Those nonconformances not closed within the agreed-upon timeframe will be identified to Senior Leaders. The findings of a specific assessment would address changes made in the process and the results of these changes. This feedback process would be ongoing over a period of time appropriate to the issue being addressed. The response to the finding of a quality assessment would also be documented to include a description of the change as well as a discussion of the

root cause of the problem. Proposed changes to standard operating procedures would be approved at the appropriate level of the organization prior to implementation so as to ensure future work considers the lessons learned from the assessment. The District has a monthly project review board meeting that is the typical forum for this type of reporting. In the case of an assessment by higher headquarters, the most senior manager in the area assessed would be responsible for reporting back to higher headquarters on District efforts to address the recommendations/requirements of one of their periodic assessments. Again a written response to the finding of the assessment would be required as well as a discussion of the root cause of the problem. Approval of any corrective actions taken would generally be made at the responsible manager's level, or at a level appropriate based on the severity and complexity of the issue; but may be elevated to the District Senior Division Chiefs or Commander level, as necessary.

## 10.0 QUALITY IMPROVEMENT

This section describes our approach for insuring continual quality improvement. It is based on three main components:

- A customer focused environment where agreements are developed and documented with customers on their requirements and expectations. Cooperation and open communication are established and maintained throughout the project.
- An organized, systematic approach is employed to assure continuous process improvement.
- Project staff are empowered and provided maximum authority commensurate with their responsibilities and are held accountable for results.

### 10.1 Quality System Improvement Process:

Project teams that are led by a project manager are responsible for the quality of their projects. The project team is tasked with insuring that the QA/QC process is implemented and followed on their project. The customer is a key member of the project team and their input is continually sought throughout the project. Project issues or problems relating to quality are generally first identified at the project level. The project team would evaluate whether the issue is an isolated event that can be addressed at the project level or an issue that may require the operating procedures and QA/QC process to be adjusted. The project manager has the responsibility for insuring that issues requiring the attention of the District's management get elevated to the appropriate level. The District's management team then has the responsibility for implementing changes to the operating procedures should they be warranted.

The Corps considers itself to be a learning organization with a focus on continuous improvement. A key component of a project is the preparation of an after action report/lessons learned summary that captures what worked and what can be improved upon from the perspective of an individual project. This information is developed by the project team and provided to District management and then disseminated to project level staff as a way of both alerting our staff to problem areas and providing valuable information to continually improve how we do business.

It is the responsibility of the District's Superfund Quality Assurance Manager and the Superfund Program Manager to monitor project specific quality concerns, and determine if the issues relate to the District's or a contractor's quality management system. These individuals are senior level managers with the experience to evaluate the project specific information and detect trends or issues that need to be addressed at a higher level. The Superfund Program Manager attends all monthly project review board meetings and is available for higher headquarters assessments. The Superfund Program Manager oversees Corps project managers working on Superfund projects. The Superfund QAM oversees the technical staff performing Superfund work on a day to day basis.

Assessments of the District's quality management system are also periodically performed as described in Sections 1 and 9. These more formal reviews of our business and QA/QC processes result in a report of findings that gets wide exposure within the District and requires follow-up action to address findings. While these assessments rarely identify significant issues, they do provide an opportunity to continually improve the system. The District's senior management (Chiefs of Planning/Programs/Project Management, Construction, and Engineering) generally has the lead role in implementing the changes and recommendations that result from periodic reviews of the District's quality management system.

#### **10.1.1 QMS Process 340, Continuous Improvement of NWO QMS.**

This QMS process framework replaces the traditional Plan, Do, Check, Act (PDCA) model referenced in ER 5-1-14. When fully implemented, this framework (described in the subparagraphs below) will provide a strategic, operational, and tactical management philosophy on delivering quality products and services to our customers. This closed-loop system involves a continual improvement process driven by customer communications and performance feedback.

### **USACE Quality and Performance Improvement Framework**

- ☐ **Understand Customer Requirements and Expectations.** Customer requirements define what customers need and expect us to do. Without customers, their requirements, and their expectations, we do not have a mission. USACE's primary customers within NWD, and the typical categories of services we provide them, will be included in a future appendix to this document.

- **Deliver Products and Services.** NWO is first and foremost an organization that executes projects in support of its customers. The types of projects we execute fall within the categories that will be listed in the appendix mentioned above. To retain our mission, it is incumbent upon us to deliver quality products and services based on customer requirements and expectations (as well as those of our stakeholders).
- **Measure and Analyze Quality, Performance, and Customer Satisfaction.** Outputs from these three measurements can provide accurate and valuable insights for use by our leadership in continually improving our processes and QMS.
- **Assess, Prioritize, Select, Sponsor, and Resource Improvements.** Using the analysis provided, Senior Leaders can make decisions on what and where improvements should be made and on who should be involved in those improvements.
- **Continually Improve Workforce Competency, Process and Doctrine, and Technology and Infrastructure.** Leaders should ensure that improvements cover impacts in these areas.
- **Use Standardized Processes, Knowledge Base, and Information Systems.** Critical to the framework is ensuring (1) that processes are documented (and standardized to the extent possible) and (2) that automated information systems are in place to facilitate the development, use, assessment, and analysis of those processes. (NWD/NWO may find it necessary to develop supplements to standardized processes that are customer specific.)

### 10.1.2 Roles and Responsibilities

**All Employees within NWD.** It is the end state and main intent of establishing, implementing, and using a QMS that will lead the organization toward continuous improvement of its activities/processes. It is common sense that all employees would have a vested interest in being more productive; recognizing that, in every instance, greater productivity and improved execution will reduce U.S. taxpayer costs for USACE work.

### 10.1.3 Procedures

NWO, as a District within NWD, will continually seek to improve its processes and use of QMS. USACE established this procedure to identify and manage improvement in conducting its many roles and responsibilities at all levels of the organization. Potential improvements can range from single office “quick fixes” or rewrites of existing processes to clarify understanding to long-term improvements requiring the efforts of appropriate personnel using a continuous process improvement (CPI) method. The efficiency and effectiveness of processes are to be emphasized when actions are taken. These actions are monitored to ensure that desired goals are

met. Identification of causes of deviations may result in changes to processes and revision of the QMS. The guiding principles/processes of CPI follow.

- The CPI process takes place throughout USACE. In accordance with QMS 110 NWO, Quality Management Overview and Management Responsibilities, Senior Leaders meet with the NWO QMS Manager, as needed, and with the District QMS Implementation Team (Functional Leaders), along with the QMS Manager, at least once a year to review and evaluate the effectiveness and functioning of the QMS. Areas not performing to the Senior Leaders' expectations are so noted, and assignments for data collection and analysis may occur to initiate correction and improvement based on the degree of improvement needed.
- NWD conducts other evaluations (such as Command Management Reviews (CMRs), Command Reviews (CRs), Command Assistance Visits (CAVs), and Design/Construction Evaluations (DCE) and Quality Assurance (QA) visits) and collects information from various sources (Enterprise Lessons Learned (eLL), Internal Assessments, and Regional Decision Support System (RDSS) information) that provide additional data. Results of these reviews will dictate whether and where improvements throughout the Region are needed.
- Internal assessments (per QMS 310 NWO, Internal Assessment) and external assessments may also provide opportunities to review and execute continuous process improvements in areas of QMS effectiveness.
- QMS 330 NWO, Nonconformances and Corrective and Preventive Actions, provides tools to identify areas of noncompliance and to implement corrective or preventive actions as needed. Results from analyzing these actions potentially provide opportunities for continuous improvement activities.

#### 10.1.4 Records and Measurements.

Type	Description	Responsible Office	Location	Record Media	Retention	Disposal
QR	Management Review Minutes	NWO QMS Manager	QMS Website	E and P	At least 3 years	Destroy
QR	No. of Processes Edited/Updated the Last Fiscal Year	NWO QMS Manager	QMS Website	E and P	At least 5 years	Destroy

#### Description of Terms

##### Type:

QR Quality Record  
R Record  
M Measurement

##### Record Media:

E Electronic  
P Paper

## **10.2 Corrective Action for Quality Related Problems:**

The majority of quality related issues are detected at the project level and addressed at that level. The project team, led by a project manager and involving the customer, has this responsibility. They also have the responsibility of reporting quality related issues to management where an assessment is made as to whether the overall QA/QC process needs to be looked at and possibly adjusted based on the project specific issue that was identified. Typically the technical office with ownership of the particular issue/process would have the responsibility for investigating the situation in more detail and making appropriate changes to the QA/QC process if appropriate.

Quality related issues identified through a District wide assessment generally require senior management to select either an individual or team and assign them the task of further investigating the issue and developing recommended changes that senior management would then implement if necessary.

Quality related issues that are identified at a regional or national level generally result in more significant process changes. Efforts of this nature are longer in duration and involve senior management both locally and regionally. They can result in changes to the regulations and guidance that the entire organization follows. The requirement to change is directed from the headquarters level with leeway allowed so the local District office can tailor the response to local operating conditions. Communication is the key component at all levels to insure problems are resolved and that best practices and process changes are identified and implemented. The District has numerous mechanisms (periodic meetings, local regulations/operating procedures, management plans) for communicating quality related information. The responsibility falls to first line management to insure that their staffs are operating in a consistent fashion, under the latest guidance, and taking advantage of the lessons learned on other projects.

## **10.3 Creating an Environment for Facilitating and Promoting Quality Improvement:**

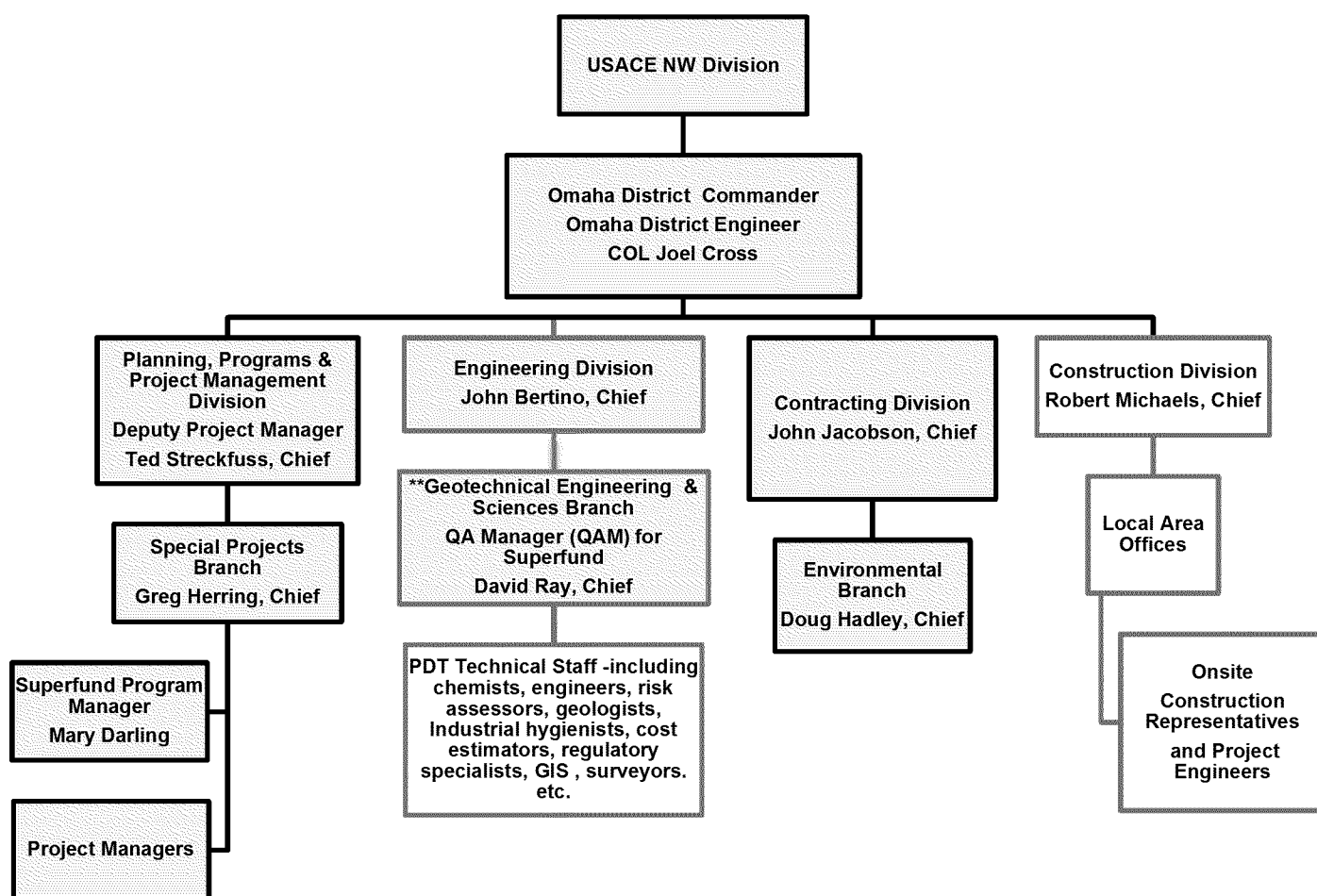
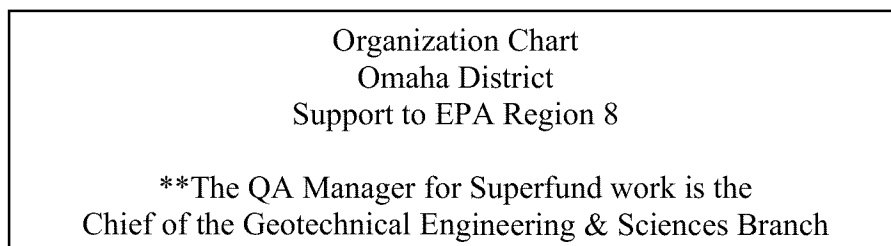
The Corps prides itself on being an organization that provides quality services and products that are focused on their customer's requirements. We empower a project team to work closely with their customer to deliver the project. Individuals and teams are rewarded based on their ability to deliver these projects. They cannot be successful if there are quality related issues. The Corps considers itself to be a learning organization. Information (both good and bad) relating to performance and our operating procedures needs to be continuously exchanged at all levels of the organization. This is a message that starts with the Commanding General and is echoed down through all levels of management. Quality is a major focus of the organizations efforts. Individuals, teams and projects are rewarded for their achievements in this area. A tremendous amount of effort is expended looking at our systems and processes with the intent of continually improving our ability to provide a quality product in line with our customers expectations. Our role as the nation's premier public engineering and construction organization depends on being successful in this area.



## **11.0 ATTACHMENTS**

1. Organization Chart
2. Contract Types
3. Omaha District QMS Process 08501
4. OSWER Directive 9272.0-17 UFP-QAPP
5. BCOE Certifications (Examples)
6. Examples of Quality Assurance Team Certification and Quality Control Review Certification
7. OSWER Directive 9240-2C (ANSETS)
8. OSWER Directive 9420.0-38 (FORMS II Lite)

## Attachment 1



## Attachment 2

### Contract Types available for use in EPA Region 8

#### Contract Types:

- ☐ Single Award Task Order Contract SATOC – Task Order Contract competed with a single contractor selected.
- ☐ Multiple Award Task Order Contracts MATOC – Task Order Contract competed with a “pool” of contractors selected.
- ☐ Environmental Remediation Services (ERS) Contracts Multiple Award Remediation Contracts (MARC)s: The scope of these contracts covers remedial activities, including incidental engineering and technical services in support of remedial action.
- ☐ Environmental Consulting Contracts and Technical Service support contracts.
- ☐ Architect – Engineer Services Contracts (A/E): These contracts are used for investigation and design work along with other engineering/technical support.
- ☐ Long-Term Response Action Contracts (LTRA): The scope of these contracts includes long-term monitoring and long-term operation at remedial sites.

#### Active Contracts held by Omaha District available for work in EPA Region 8:

##### Environmental Remedial Services (ERS) Single Award Remediation Contracts (SATOCs)

###### Small Business

- ☐ Accord & MACTEC JV
- ☐ Bay West, Inc.
- ☐ EST
- ☐ Sky Research

###### 8(a) Some contracts have limited capacity, but additional 8(a) contracts could be obtained.

- ☐ Aerostar
- ☐ Consultech-Bhate JV
- ☐ EW Wells Group, LCC
- ☐ FutureNet
- ☐ J.C. Palomar, Inc.
- ☐ NationView

- ☐ RORE
- ☐ SEARCH (Archaeological Services)
- ☐ SpecProTidewater, Inc.
- ☐ Trinity
- ☐ Trinity A&D

Hubzone

- ☐ Environmental Solutions & Technologies, Inc.
- ☐ .

Service Disabled Veteran Owned SB

- ☐ Sullivan

**MMRP MATOCs:**

**Unrestricted MATOC**

- ☐ AMEC Earth & Environmental
- ☐ Shaw E&I, Inc.
- ☐ URS Group, Inc.
- ☐ Weston Solutions, Inc.
- ☐ Parsons Infrastructure & Tech Group, Inc.

**SB MATOC:**

- ☐ Bay West, Inc.
- ☐ Zapata, Inc.
- ☐ EA Engineering, Science, & Technology, Inc.
- ☐ HydroGeoLogic, Inc.
- ☐ Sky Research

**ERS HUBZone MATOC:**

- ☐ Terragraphics Environmental Engineering, Inc.
- ☐ CKY, Inc.
- ☐ ASW, Inc.
- ☐ Coastal Environmental Group, Inc.
- ☐ Remediation Services Inc.

**ERS SDVOSB MATOC:**

- ☐ Sullivan ACI Federal Services
- ☐ BC-JC (dba BC-CKY JV)
- ☐ SDV Engineering & Construction
- ☐ Los Alamos Technical

- ☐ LRS Federal LLC

**ERS 8(a) MATOC:**

- ☐ Oneida Total Integrated Enterprises (OTIE)
- ☐ Tidewater, Inc.
- ☐ EMR, Inc.
- ☐ Earth Resources Technology, Inc.
- ☐ Terranear PMC, LLC

**ERS Emerging SB MATOC:**

- ☐ Oneida Total Integrated Enterprises (OTIE)
- ☐ TEC-BSC JV
- ☐ Bay West, Inc.
- ☐ Advent Environmental
- ☐ Bhate Environmental Associates. Inc.

**ERS SB w Incidental MMRP MATOC:**

- ☐ E A Engineering Science & Technology, Inc.
- ☐ HydroGeoLogic, Inc.
- ☐ Cape, Inc.
- ☐ Bay West, Inc.
- ☐ North Wind, Inc.

**ERS SB without Military Munitions Response Program MMRP MATOC:**

- ☐ Bay West, Inc.
- ☐ HydroGeoLogic, Inc.
- ☐ Bhate Environmental Associates, Inc.
- ☐ Innovative Technical Solutions, Inc.
- ☐ Arrowhead Contracting, Inc.

**ERS Unrestricted w/incidental MMRP MATOC:**

- ☐ Tetra Tech, Inc.
- ☐ URS Group Inc.
- ☐ Shaw E&I, Inc.

**ERS Unrestricted MATOC:**

- ☐ **Bay West, Inc.**
- ☐ **Engineering Remediation Resources Group, Inc. (ERRG)**
- ☐ **RMC Sound Earth LLC**
- ☐ **HydroGeologic, Inc.**
- ☐ **EA Engineering, Science & Technology, Inc.**

- ☐ **North Wind, Inc.**
- ☐ **Earth Resources Technology, Inc.**
- ☐ **Bhate Environmental Associates, Inc.**
- ☐ **PIKA Arcadis JV**
- ☐ **Zapata, Inc.**

**Immediate/Rapid Response SATOC:**

- ☐ CB&I, Inc. - Unrestricted
- ☐ Bristol/Weston JV - SB

**Security Disaster and Infrastructure Unrestricted SATOC:**

- ☐ URS Group
- ☐ Weston Solutions, Inc.
- ☐ KBR

**Security Disaster and Infrastructure 8(a) SATOC:**

- ☐ SDIC Constructors
- ☐ Sullivan International Group, Inc.
- ☐ Bristol Construction Services, LLC

**Service Disabled Veteran Owned Environmental Consulting Multiple Award Contract:**

- ☐ Labat Environmental
- ☐ LRS Federal LLC
- ☐ Q Technology International

**HubZone Environmental Consulting Multiple Award Contract:**

- ☐ Innovar
- ☐ Geo Consultants
- ☐ TerraGraphics

**Airborne Remote Sensing, Geophysical Mapping and Associated Services**  
**Sky Research, Inc.**

(Omaha District can also “borrow” capacity from other Corps district’s contracts.)

## Attachment 3

### Omaha District QMS Process 08501



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NWO QMS

Engineering Quality Control Process for In-house Projects/Products

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 <p><b>US Army Corps of Engineers®</b> Omaha District</p>	<p><b>08501 NWO</b></p> <p><b><i>Engineering Division Quality Control Process for In-house Projects/Products</i></b></p>	 <p><b>Northwestern Division</b></p>
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### *Table of Contents*

- 1.0 Purpose
- 2.0 Applicability
- 3.0 References
- 4.0 Related Procedures
- 5.0 Definitions
- 6.0 Responsibilities
- 7.0 Procedures
- 8.0 Records & Measurements
- 9.0 Attachments
- 10.0 Flow Chart

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**1.0 Purpose.** This document describes the design quality control process for engineering products developed for in-house projects by Omaha District’s Engineering Division. In addition, where Omaha District is providing design support for a project or effort being managed by another entity (e.g., another District), Engineering Division will continue to implement and integrate appropriate Omaha District design quality control processes into the overall design quality control process for that project/product. Engineering Division is ultimately responsible for the quality control and quality assurance of all engineering and design products produced.

**2.0 Applicability.** This process applies to the in-house production of all studies, reports, designs, design documents, and contract documents. It provides the general framework for required quality activities. Project-specific requirements and sequencing of quality activities will be defined in an individual Quality Management Plan (QMP), which is part of each project’s Project Management Plan (PMP). This process will reside on the NWO Quality Management System (QMS) site and is applicable to all Omaha District staff. Notifications of revisions to this process will be sent via e-mail to all District staff.

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### 3.0 References.

Engineer Circular (EC) 1165-2-209, Civil Works Review Policy  
EC 1165-2-209, Civil Works Review Policy, Change 1  
Engineer Pamphlet (EP) 415-1-260, Resident Engineer Management Guide  
EP 715-1-7, Architect-Engineer Contracting in USACE  
Engineer Regulation (ER) 5-1-11, U.S. Army Corps of Engineers (USACE) Business Process  
ER 415-1-11, Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Review  
ER 1110-1-12, Quality Management  
ER 1110-1-8152, Professional Registration and Signature on Design Documents  
ER 1110-2-1150, Engineering and Design for Civil Works Projects  
ER 1110-345-100, Design Policy for Military Construction  
ER 1110-345-700, Design Analysis, Drawings and Specifications

### 4.0 Related Procedures.

08500 NWO Value Engineering Program Management Plan  
08502 NWD EC 1165-2-209 Civil Works Review Policy Guidance  
ES-02001 Project Management Plan Preparation  
ES-08007 Engineer of Record and Design Responsibility  
ES-08020 Biddability, Constructability, Operability, and Environmental (BCOE) Review

### 5.0 Definitions.

**Customer.** Any government or civilian organization/entity or person requesting a planning, engineering, or construction product or service from USACE, and for which consideration is granted. Customers may be either internal or external to USACE such as a local sponsor, owner, client, or user.

**Design Quality Control Plan (DQCP).** The document that defines how quality control will be implemented for Engineering Division products. This plan can be integrated into a project's overall quality control plan for all disciplines or serve as a standalone document in the absence of an overall project quality control plan.

**Engineering Products.** For purposes of this process--studies, reports, design documentation reports, drawings, technical appendices, specifications, and other major work products or decision documents. These types of documents require approval by the Chief of Engineering Division. Other products or efforts may be approved at a level below the Chief of Engineering Division.

**Project Management Plan (PMP).** A document required for the execution of all work, in accordance with ER 5-1-11. The PMP identifies the scope, schedule, and resources needed to accomplish the work. The PMP also contains the Quality Management Plan (QMP), which consists of the Quality Control Plan (QCP) and Quality Assurance Plan (QAP), as illustrated below.

- Project Management Plan (PMP)
  - ▶ Quality Management Plan (QMP)

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- Quality Control Plan (DQCP would be incorporated in the QCP)
- Quality Assurance Plan (QAP)

**Quality Assurance (QA).** The process to evaluate and verify the effectiveness of quality control processes on both a product-specific and a systematic basis.

**Quality Assurance Plan (QAP).** The quality assurance component of the QMP that defines how quality assurance will be executed for products and services that are completed by outside resources, including architect-engineer (A-E) contractors as well as other USACE Districts or government agencies.

**Quality Control (QC).** That part of quality management focused on fulfilling quality requirements of a project, product, service, or process. It includes those processes used to ensure performance meets agreed-upon customer requirements that are consistent with law, regulations, policies, sound technical criteria, schedules, and budgets.

**Quality Control Plan (QCP).** A component of the QMP and PMP. The QCP is a written plan that defines how quality control will be executed for products.

**Quality Management Plan (QMP).** The quality component of the PMP. It is the document that specifies QC and QA processes appropriate to the size, complexity, and nature of the project. The QMP will include the project's QCP and QAP, which identify the quality control and quality assurance requirements for the overall project, including work performed by contractors, as applicable.

**Scope of Work (SOW).** A document that defines the work to be performed, deliverables, schedule milestones, and budget requirements. It describes the expectations of the customer and is the document used when negotiating for the development of products.

## **6.0 Responsibilities.**

### **1.0 Customer**

- ☐ Participate in developing and defining the project objectives and scope of work (SOW) and authorize modifications to the SOW.
- ☐ Participate in product quality control/technical reviews.

### **2.0 Engineering Division Chief**

- ☐ Responsible for overall quality of Engineering Division products and implementation of the quality control program within Engineering Division.

### **Engineering Division Branch Chief Quality Management Board**

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- ☐ Provide direction, policies, and guidance for implementation of Engineering Division's quality program.
- ☐ Review and monitor the status of Engineering Division's quality program (e.g., processes, implementation, assessments, etc.).
- ☐ Approve generic or programmatic Design Quality Control Plans (DQCPs).
- ☐ Resolve quality issues brought to the Board's attention.

### **3.0 Engineering Division Branch Chiefs.**

- ☐ *Develop and maintain quality procedures for their functional areas.*
- ☐ Serve on the Engineering Division Branch Chief Quality Management Board.
- ☐ Ensure quality procedures are followed and project objectives are met.
- ☐ Review and approve DQCPs.
- ☐ Approve appropriate Project Delivery Team (PDT) members and the Technical Lead for projects based on factors such as project scope, complexity, and team member experience and expertise.

### **4.0 Engineering Division Section Chiefs.**

- ☐ *Develop and maintain quality procedures for their functional areas.*
- ☐ Ensure compliance with quality procedures.
- ☐ Ensure quality of engineering products.
- ☐ Ensure staff's technical adequacy/competency for the work assigned.
- ☐ Review and approve DQCPs.
- ☐ Select appropriate PDT members and the Technical Lead for projects based on factors such as project scope, complexity, and team member experience and expertise.

### **5.0 Technical Lead (e.g., Lead Engineer).**

- ☐ Responsible for overall Engineering Division product quality.
- ☐ Serve as primary point of contact for technical and quality issues related to the project.
- ☐ Ensure that sufficient engineering detail is included in the PMP.
- ☐ Lead development of the DQCP for Engineering Division.
- ☐ Ensure compliance with the DQCP throughout project execution.
- ☐ Establish content requirements and organization of engineering products.
- ☐ Coordinate technical activities of various engineering disciplines.
- ☐ Facilitate technical review conferences, interdisciplinary reviews, plan-in-hand reviews, and resolution of review comments.
- ☐ Maintain record copies of quality control documentation, as provided for in the DQCP (e.g., DQCP, review comments, marked-up drawings, certifications, etc.).

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## 6.0 Project Delivery Team (PDT).

- ☐ *Provide quality work products and services.*
- ☐ Responsible for the adequacy and safety of design.
- ☐ Participate in the development of the project PMP, to include the DQCP.
- ☐ Ensure appropriate reviews, as required in the DQCP, are performed and documented.
- ☐ Interface with other functional disciplines and coordinate designs across functional areas to ensure quality of the entire product.
- ☐ Identify and elevate key issues at project startup and throughout product development.
- ☐ Furnish pertinent project documents to the Project Manager (PM) for the project file.

## 7.0 Project Manager (PM).

- ☐ Coordinate with Section and Branch Chiefs to assemble the PDT.
- ☐ Coordinate overall efforts of the PDT.
- ☐ Lead the PDT in developing the PMP and QMP.
- ☐ Coordinate and document appropriate changes in the PMP as the project develops.
- ☐ Ensure QC reviews are appropriately funded and scheduled.
- ☐ Maintain the project file, to include all QC-related documentation.
- ☐ Complete project closeout activities.

## 7.0 Procedures.

**7.1 Project Management Plan and Design Quality Control Plan.** In accordance with ER 5-1-11, all projects will have a PMP. A PMP will be developed at the initiation of the project under the direction of the PM. The Technical Lead (e.g., Lead Engineer) is responsible for coordinating with the PM and PDT to ensure adequate engineering support is provided during the development of the PMP. The Technical Lead is also responsible for leading the development of the DQCP for Omaha District Engineering Division reviews. The DQCP can be integrated into a project's overall quality control plan for all disciplines or serve as a standalone document in the absence of an overall project quality control plan. The PM will coordinate requirements for any additional reviews required (e.g., Independent External Peer Review, Agency Technical Reviews, etc.), and these will be incorporated into the overall QMP. See 08502 NWD EC 1165-2-209 Civil Works Review Policy Guidance for additional information regarding appropriate levels of product review.

**7.1.1 Project Management Plan.** The PMP serves to identify the scope, schedule, and resources needed to accomplish project/program execution and associated coordination with the customer. The PM will lead the overall development of the PMP. The PM and PDT, to include the customer, will develop and maintain the PMP at a level of detail commensurate with the scope of the project. To be an effective management and communication tool, the plan must be a living document that is updated as conditions change. The PM will coordinate any changes to the project with the customer and the PDT and will update the PMP as appropriate. The PMP consists of sections on communications, risk, quality, acquisition, and change strategies for managing the project, among other topics.

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The Technical Lead will ensure that the following information is incorporated into the PMP in the appropriate level of detail.

- ☐ Scope of work
- ☐ Required products/submittals (e.g., study reports, design documentation reports, plans, specifications, O&M manuals, etc.)
- ☐ Budgets, which include funding for quality control reviews
- ☐ Schedules, which include time for quality control reviews
- ☐ Quality Management Plan
  - ☐ QCP (incorporates the DQCP for District-level technical quality control reviews)

**7.1.2 Design Quality Control Plan.** All engineering and design products will be prepared using a product-specific, generic, or programmatic DQCP. As indicated previously, this plan can be integrated into a project's overall quality control plan for all disciplines or serve as a standalone document in the absence of an overall project quality control plan. The Engineering Division PDT representatives, under the lead of the Technical Lead, will develop the DQCP.

Quality control is a continual process of reviews and associated documentation that occurs throughout the product development process. The quality control process of reviews and associated documentation will remain generally the same for all projects/products. However, review requirements are scalable and the DQCP will be tailored to the needs of each individual project/product based on the scope, complexity, risk, cost, staff experience, etc. For example, a complex project with high potential for loss of life if a failure occurred will require a product-specific DQCP that potentially calls for multiple rounds of internal reviews at different stages of product development, whereas a routine, low-cost and low-risk project may be covered under a programmatic DQCP and require only a single round of reviews. Refer to [Attachment 14](#) for a risk register that can be used to help define project issues, complexity, risk, cost, designer experience, etc. to assist in determining the appropriate level of review. Reviews may also be consolidated, as appropriate, to speed the review process (e.g., combining the Supervisory Interdisciplinary Review and BCOE Reviews). Supervisors will select the individuals to perform the reviews based on factors such as project scope, complexity, and size; sponsor/customer expectations; public scrutiny; life safety; technical expertise required; etc. Larger, more difficult, risky, or complex projects will be reviewed by more experienced staff.

- ☐ **Product-Specific DQCP.** Products for non-routine, high-risk, unique, and/or complex projects will use a product-specific DQCP. The DQCP should include, as a minimum, the items listed in [Attachment 1](#). An example of a product-specific DQCP is provided in [Attachment 2](#). DQCPs will be reviewed by the Section Chief of each technical discipline on the PDT and will be approved by the Branch Chief for the Lead Technical Organization. A DQCP Review and Approval Certification Form will be completed for each DQCP (see [Attachment 3](#)).
- ☐ **Generic or Programmatic DQCP.** Routine, minor, and/or low-risk products may use generic DQCPs. Similarly, programmatic DQCPs may be developed and used for ongoing or continuous programs. Generic or programmatic DQCPs will be developed by the Lead Technical Organization, reviewed by the Section Chief of each technical discipline providing support under the DQCP, and

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approved by the Branch Chief for the Lead Technical Organization. After initially approved, a short supplement to the DQCP will be developed for each project for which a generic or programmatic DQCP is used. This supplement will provide project-specific details, including project description, PDT and review team members, review schedule, costs, and any other information as needed. The supplement to the DQCP will be developed and approved by the Lead Technical Organization for the project. The Lead Technical Organization's Branch Chief may delegate approval authority of the supplements to Section Chiefs. For example, a programmatic DQCP that outlines the required reviews and review process, among other items, may be developed for Section 14 projects. Then, once a specific Section 14 project is subsequently initiated, a supplement will be prepared that identifies the project, PDT members, reviewers, etc. consistent with the approved DQCP. A DQCP Review and Approval Certification form will be completed for each generic or programmatic DQCP developed (see Attachment 3).

**7.2 Design Quality Control.** The individual designers are ultimately responsible for the overall adequacy and safety of the product/design (refer to ES-08007 Engineer of Record and Design Responsibility). Throughout product development, Engineering Division will use several types of internal reviews to ensure product quality. The type and number of reviews, or review cycles or phases, along with the level of reviewer experience/qualifications, are scalable and will be based on the project's complexity and risk and defined in the DQCP. If it is determined that not all of the reviews indicated below in paragraphs 7.2.2 through 7.2.6, 7.3, and 7.4 are appropriate for a given project/product, the DQCP will include a brief justification for why that review(s) will not be performed. Refer to the flow chart in paragraph 10 that illustrates the general type and sequence of reviews.

**7.2.1 Products To Be Reviewed.** At each required review, the products that will be subject to review and their associated level of completeness will be defined so that all parties have an understanding of requirements. For example, the DQCP for a 30% design PDT Interdisciplinary Review may require that the design documentation report, plans, specifications, and operations and maintenance (O&M) manual be available for review with a stated level of detail expected. The Omaha District Design Guide (refer to Design Branch, Engineering Division for the current Omaha District Design Guide) provides some information regarding submittal requirements for different levels of design for different types of projects.

**7.2.2 Peer Review/Design Check.** Peer Reviews/Design Checks are reviews of each designer's assumptions, analyses, calculations, and other products that are performed internal to the PDT member's section/technical discipline throughout the product development process. Peer Reviews/Design Checks will be scheduled and performed by qualified reviewers prior to completion of various stages of product development (e.g., 30%, 60%, and 90% design milestones), as appropriate, based on the project's complexity and risk. The reviews should include an evaluation of the correct application of methods, validity of assumptions, adequacy of basic data, correctness of calculations, completeness of documentation, and compliance with guidance, criteria, and standards. All checked drawings, computations, and analyses shall be annotated to show the initials of the designer/originator and the reviewer. Design checklists should be developed by each functional discipline to strengthen the Peer Review/Design Check process. A Peer Review/Design Check Certification form will be completed for each review (see Attachment 4).

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**7.2.3 PDT Interdisciplinary Review.** A PDT Interdisciplinary Review is a multidisciplinary review performed by the PDT to ensure that the product meets project scope and objectives and that all elements are properly integrated and compatible. This type of interlocking review and interaction between technical disciplines, construction, and customers or other stakeholders, as needed, is necessary throughout the product development process to ensure that the product is being conceived and developed in a holistic manner. Although this is an ongoing process throughout product development, formal PDT Interdisciplinary Reviews will be conducted at various stages of product development (e.g., 30%, 60%, and 90% design), as appropriate, based on the project's complexity and risk. PDT members will be knowledgeable about the critical project requirements of all their PDT counterparts, understand how their own particular project elements and work relates to and affects those requirements, and conduct their reviews to ensure consistency and effective coordination across all project disciplines. A PDT Interdisciplinary Review Certification form will be completed for each such review (see [Attachment 5](#)).

**7.2.4 Plan-in-Hand Reviews.** For products that will result in a construction contract, the PDT may conduct a review(s) of the site, comparing the plans with the current site characteristics, where appropriate. This review is to determine if any significant changes to the site, such as topographic or utility alterations, have occurred or other conditions are present that would impact the final product. A Plan-in-Hand Review Certification form will be completed for each such review (see [Attachment 6](#)).

**7.2.5 Supervisory Interdisciplinary Review.** A Supervisory Interdisciplinary Review is similar to the PDT Interdisciplinary Review except that it will be conducted by the supervisors of the technical disciplines that are on the PDT or by their designated representatives who are not involved in the day-to-day production of a project/product. The review will ensure that the product meets project scope and objectives, that all elements are properly integrated and compatible, and that proper application of established criteria, regulations, laws, codes, principles, and professional practices has occurred. Supervisory Interdisciplinary Reviews will be conducted at various stages of product development (e.g., 30%, 60%, and 90% design), as appropriate, based on the project's complexity and risk. A Supervisory Interdisciplinary Review Certification form will be completed for each such review (see [Attachment 7](#)).

**7.2.6 Biddability, Constructibility, Operability, Environmental and Sustainability (BCOES) Reviews.** For products that will result in a construction contract, BCOES Reviews will be conducted in accordance with [ER 415-1-11](#). As indicated in the ER, input from Construction Division and Operations Division personnel is desirable throughout the design process to allow incorporation of constructability or operational comments during design development. Formal or informal BCOES Reviews may be conducted periodically throughout the design process to accommodate this type of continuing input. A final BCOES Review will be conducted near product completion and may be performed concurrent with the final Supervisory Interdisciplinary Review. A BCOES Review Certification Form will be completed for each project (see [Attachment 8](#)).

**7.3 Value Engineering Study.** A Value Engineering (VE) study may be required, as outlined in [08500 NWO Value Engineering Program Management Plan](#). If a VE study is required, it should be incorporated into the overall project schedule.

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**7.4 Lessons Learned Review.** To the extent practicable, a post construction review of the product should be conducted to assess constructibility and functionality issues to allow the District to capture lessons learned and improve future products. The timing and extent of such a review will vary and may not be performed on all projects. In some instances, the review may be limited to an assessment of the contract documents and any issues that developed during construction. For a vertical construction project, the review may occur several months after occupancy so that input from both construction elements and building users can be obtained.

**7.5 Other Required Reviews.** Depending on the product, additional reviews may be required outside of the internal design quality control process (e.g., legal reviews, agency technical reviews, independent external peer reviews, etc.). The need for any such reviews will be defined in the PMP's QMP. The QMP will define the interrelationship between any such reviews and design quality control reviews and product approvals.

**7.6 Final Engineering Division Product Approval.** The Chief of Engineering Division will approve significant in-house Engineering Division final products before external release through the signing of the Product Completion Certification Form, BCOE Certification Form, BCOE Waiver, and/or drawings, as applicable. Significant Engineering Division final products include studies, reports, design documentation reports, drawings, specifications, and other major work products or decision documents. Other products or efforts may be approved at a level below the Chief of Engineering Division (i.e., at the Branch Chief and Section Chief levels). The Chief of Engineering Division may also delegate approval authority for programs or types of products to Engineering Division Branch Chiefs. Requests for final approval will be accompanied by the product, the DQCP, review certifications, and other appropriate documents (see Chief of Engineering Division Approval Checklist, Attachment 13).

**7.6.1 Product Completion Certification.** A Product Completion Certification form will be completed by the PDT once all required reviews are completed, all significant conflicts and comments have been resolved, and the final product is ready for approval by the Chief of Engineering. The Engineering Division Branch Chief(s) of the major project feature(s) will also sign the form to attest that the product is complete and in general compliance with established policy, criteria, and engineering practice and that appropriate quality control processes have been followed. The Chief of Engineering Division will be the final signatory on this document, and his/her signature indicates approval of the product. (See Attachment 9.) The use of this form may be expanded to cover approval of the final product from other Divisions/Branches (e.g., Planning), as appropriate. The approval process should be defined in the QMP.

**7.6.2 BCOE Certification.** Prior to advertisement of construction contracts, a BCOE Certification will be completed (see Attachment 10 or equivalent). The Chief of Operations Division (applicable to Civil O&M projects only), Chief of Construction Division, and Chief of Engineering Division will sign the certification. If circumstances require that a project be advertised before the BCOE Certification can be completed, a BCOE Waiver will be prepared (see Attachment 11). Phased and fast-tracked products will require a BCOE Certification for each phase or package. For instance, two-phase requests for proposals (RFPs) would require a BCOE Certification for each phase (the initial RFP and the technical amendment). If fast tracked, a BCOE Certification would be required for each

**Attachment 3**

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design package. Clarification on specific requirements for individual projects should be sought from the Branch Chief of the major project feature.

**7.6.3 Construction Drawings Approval.** The Chief of Engineering Division, as a registered professional, will sign the drawing signature block after all involved Engineering Division Branch Chiefs and Section Chiefs have signed. The signature block should be submitted for Chief of Engineering Division signature concurrent with the BCOE certification as discussed above. This endorsed signature block will subsequently be placed on the drawing cover sheet, thereby approving the final drawing set. (See Drawing Cover Sheet Signature Block, Attachment 12.) Individual drawing sheet title blocks will be appropriately filled out to include the designer and the appropriate Section Chief who are submitting and approving the drawing. Sealed documents may be requested. Stamping/sealing documents will be done in accordance with ER 1110-1-8152.

**7.6.4 Design-Build Requests for Proposals (RFPs).** The Chief of Engineering Division will generally not sign drawings for design-build RFPs, unless some portions of the design were completed in-house and included as contract requirements.

**7.7 Quality Control Documentation.** The Design Review and Checking System (DrChecks) will be used to place all *significant* comments generated during PDT Interdisciplinary, Supervisory Interdisciplinary, and BCOES Reviews. DrChecks provides a centralized location to conduct reviews and document review comments, responses, and back checks. Marked-up calculation sheets, drawings, and documents (e.g., design documentation reports, specifications, etc.) will also be used to convey reviewer comments to the designers, as appropriate. The documentation to be placed in the QC file, which will be maintained by the Lead Technical Organization, should be defined in the DQCP and may include the following items.

- ☐ The final PMP with the DQCP
- ☐ Review, certification, and/or approval forms
- ☐ DrChecks review report
- ☐ Marked-up calculation sheets, drawings, documents (e.g., design documentation reports, specifications, etc.), and checklists
- ☐ Other review comments and associated resolutions
- ☐ Final product(s)

**7.8 Quality Control Checklists.** Checklists may be used to guide reviews and ensure that critical items are not overlooked. Checklists may also be used to simplify the documentation of the review. The use of checklists in the documentation does not, however, eliminate the requirement to document specific comments. The development, maintenance, and/or use of checklists to assist in quality control reviews and/or the design process are at the discretion of each technical organization.

**8.0 Records and Measurements.** This process produces drawings, specifications, design analysis, and various planning and engineering reports and study documents. Formal submissions for review constitute a record. The PM for each project shall maintain project files, including project correspondence, memorandums for record (MFRs), PMPs, and DQCPs, in accordance with the PMP. PDT members are to furnish pertinent project documents to the PM for the project file. The Technical Lead will maintain a copy of all design quality control documentation.

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Type	Description	Responsible Office	Location	Record Media	Retention	Disposition
R	Drawings, specifications, design analysis, and any related planning, engineering , product surveys, and/or study documents	Project Management	PM Project Files	E or P	1 year after final project completion, including all phases	Send to records holding
R	Design quality control documentation	Lead Technical Organization	Project Files	E or P	3 years after final project completion, including all phases	Send to records holding

## Description of Terms

### Type:

R Record  
M Measurement

### Record Media:

E Electronic  
P Paper

## 9.0 Attachments.

Attachment 1, Design Quality Control Plan Requirements

Attachment 2, Example Design Quality Control Plan

Attachment 3, DQCP Review and Approval Certification

Attachment 4, Peer Review/Design Check Certification

Attachment 5, PDT Interdisciplinary Review Certification

Attachment 6, Plan-in-Hand Review Certification

Attachment 7, Supervisory Interdisciplinary Review Certification

Attachment 8, BCOES Review Certification

Attachment 9, Product Completion Certification

Attachment10, BCOES Certification

Attachment 11, BCOES Waiver

Attachment 12, Drawing Cover Sheet Signature Block

Attachment 13, Chief of Engineering Division, In-House Developed Products Approval Checklist

Attachment 14, Risk Register and Risk Matrix

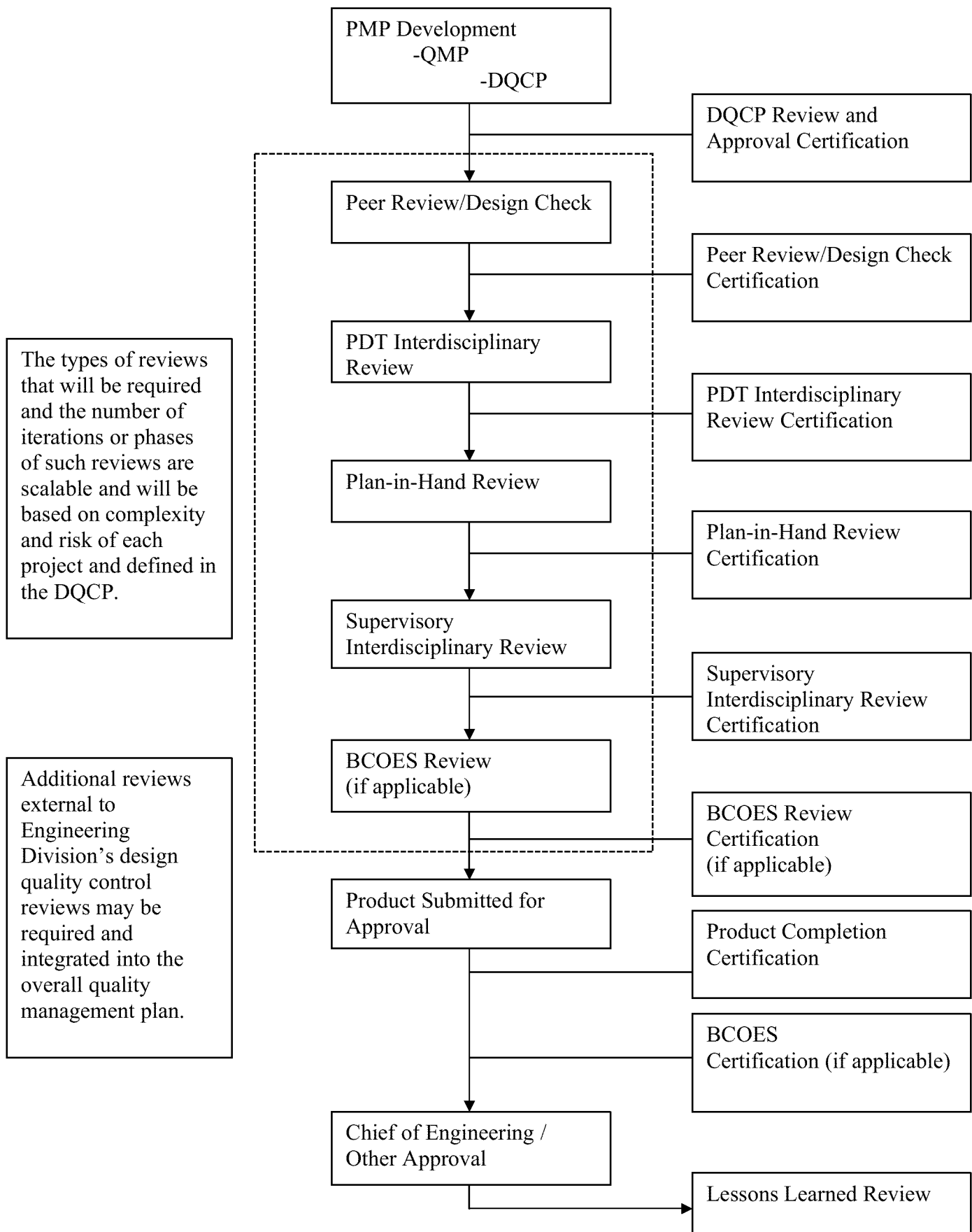
Attachment 15, Fillable Forms (08501.1 NWO)

## 10.0 Flow Chart. See the following page.

### Attachment 3

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# GENERAL OVERVIEW OF DESIGN QUALITY CONTROL PROCESS



## Attachment 3

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## Attachment 1

### **Design Quality Control Plan Requirements**

The DQCP will include the following information at a minimum.

#### **1 . General Information**

- 1.1 Project Name
- 1.2 Project Location
- 1.3 Customer
- 1.4 Project Type (e.g., Section 205 Planning Study, MILCON, etc.)
- 1.5 Brief Project Description (1-2 sentences)
- 1.6 Deliverables (e.g., plans, specifications, cost estimate, O&M plan, DDR)
- 1.7 Current Working Estimate (estimated cost of project)
- 1.8 Design Budget (overall design budget of \$x, of which \$x is Engineering Division)

#### **2 . Project Definition and Risk Assessment** (overall project scope/magnitude, anticipated or potential challenges or issues (technical, funding, schedule, political, etc.), sensitive or high visibility items, issues/concerns requiring special attention, etc)

- 2.1 Project Risk and Complexity
- 2.2 Project Schedule Risk

#### **3 . Design Quality Control Review Requirements**

- 3.1 General
- 3.2 Reviews
- 3.3 Quality Control Documentation and Retention
- 3.4 Value Engineering Study
- 3.5 Final Engineering Division Product Approval
- 3.6 Forms

#### **4. PDT Information**

- 4.1 Project Manager
- 4.2 Technical Lead and Lead Technical Organization
- 4.3 Engineering Division Project Delivery Team
- 4.4 Engineering Division Design Review Team(s)

#### **Attachment 3**

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## Attachment 2

### **Example Design Quality Control Plan**

Provided on the following page is an example of a DQCP. Each DQCP will be tailored to the needs of each individual project/product based on the scope, complexity, risk, cost, staff experience, etc.

### **Attachment 3**

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# ENGINEERING DIVISION EXAMPLE DESIGN QUALITY CONTROL PLAN

## EXAMPLE PROJECT

Date

**1. GENERAL INFORMATION.** Provided herein is Engineering Division's Design Quality Control Plan (DQCP) for the subject project. The DQCP requirements will be incorporated into the overall Project Management Plan (PMP) for the project.

**1.1 Project Name:** Example Project

**1.2 Project Location:** Missouri River Mile 1000, Nowhere County, Nebraska

**1.3 Customer:** Internal, Missouri River Recovery Program

**1.4 Project Type:** Missouri River Recovery Program Shallow Water Habitat

**1.5 Project Overview:** Reconfigure an existing backwater to create a flow through chute. The newly created chute will be located adjacent to a federal levee system.

**1.6 Deliverables:** Plans, Specifications, cost estimate, O&M Manual, and Project Information Report

**1.7 Current Working Estimate:** \$5M

**1.8 Design Budget:** Overall design budget of \$300K, which approximately \$150K is Engineering Division.

## 2. PROJECT DEFINITION AND RISK ASSESSMENT

**2.1 Project Description:** This is a shallow water habitat (SWH) creation project being implemented through the Missouri River Recovery Program. Development of SWH is a requirement of the 2003 Biological Opinion and this project will result in the creation of additional acreages of SWH that will be applied towards the total acreage requirements.

The site is located in Nowhere County, Nebraska on the right bank of the Missouri River at approximately River Mile 1000. The site is located on approximately 500 acres of federally owned floodplain land purchased for the Missouri River Recovery Program. Missouri River Levee Unit N-1000, Federally constructed and locally owned and operated levee, transects the property. The Missouri River in this reach has been altered to provide a navigation channel under the Missouri River Bank Stabilization & Navigation Project. A large industrial facility sits on the river approximately one mile upstream of the site.

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The Corps completed construction of a backwater between the levee and river at the project site in 1950. This was a deviation from the original design for the project that called for a flow through chute. The design was changed from a chute to backwater due to the inability to acquire real estate for the chute entrance upstream of the boundaries of the current project. In addition, the industrial facility was in the process of relicensing their facility at the time of original construction and had concerns related to water quality downstream of the plant and impacts from the project. Consequently, the chute was redesigned as a backwater all within existing Corps property.

Currently, the existing backwater is providing less than optimal habitat. In order to create more suitable habitat that would qualify as SWH under the Biological Opinion, the backwater will be converted to a flow through chute. The current concept plan calls for the chute to be constructed through the general alignment of the existing backwater with a new chute inlet located on Corps' property at the upstream end. A dredged pilot channel constructed to an intermediate width would extend through the entire length of the chute. The intent is that the chute would expand to its optimum width through natural erosion processes. In order for this to occur, an inlet control structure would be constructed to the estimated final width of the channel that would allow sufficient energy for scour of the pilot channel to the optimum width. The inlet structure will require modification in the future once the optimum width is obtained to reduce energy during normal flow regimes. Various types of habitat structures (e.g., rock/woody debris piles) will be periodically placed within the chute.

The current acquisition strategy calls for this to be awarded as a task order to the existing Multiple Award Task Order Contract (MATOC) for Construction, Missouri River Recovery Program. The contractors in this pool all have significant experience with this type of construction.

**2.2 Project Risk and Complexity.** Overall this is not a complex project from a hydraulic design and construction perspective. There are no known design/construction related challenges with respect to the chute itself and multiple similar projects have been previously designed and constructed by the Omaha District.

SWH projects, such as this chute project, are intended to function without adversely impacting other authorized purposes of the MR BSNP (i.e., bank stabilization and navigation) or the function of the adjacent flood control levee. However, there are risks associated with these types of projects with impacts or perceived impacts to other projects or authorized purposes in extreme floods. Following the historic Missouri River flood of 2011, there were erosion scours adjacent to other chutes and in other areas of the floodplain. Local landowners and levee boards and as navigation interests contend that the chutes may have an adverse impact on levees and the navigation channel (e.g. reduced Missouri River main channel flows resulting in shoaling and narrowing of the authorized channel).

From a regulatory perspective, the Water Commission will not issue a permit for dredging and disposal in the river. While the project is located in Nebraska, current COE Regulatory policy is that water quality project approval is received from both states adjacent to the Missouri River. While this issue will not impact project design, it may delay project construction.

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The PDT has and will continue to coordinate with the industrial plant given the proximity of the location of the inlet to the plant discharges. However, there are no anticipated issues with industrial plant that would impact the implementation of the project.

This will be the first chute designed and constructed adjacent to a levee system since the 2011 flood. Given the lessons learned from the 2011 Missouri River Flood and stakeholder interest, any new chutes warrant a thorough review of the project's design. Given the high interest in chute projects and project risk, experienced staff is required for design and review.

**2.3 Project Schedule Risk.** The project is currently scheduled for design during FY13 with construction programmed for FY14. However, ideally the project design could be completed and the project ready for construction award by the end of FY13 in the event 4<sup>th</sup> quarter funds are available. There is limited risk that the design cannot be completed by the end of FY13 with all associated reviews. Funding will be available at the start of the FY and it is believed that any technical concerns that may develop can be satisfactory addressed. There is a high risk that construction of the project will not start until after FY14 due to Missouri River Water Commission objections to dredge disposal in the river. Resolution of this issue has been delayed multiple times and is currently being worked by Missouri River Recovery Program senior leadership. This issue is not the responsibility of Omaha District Engineering Division Funding for construction is anticipated to be available in FY14.

### **3. DESIGN QUALITY CONTROL REVIEW REQUIREMENTS**

**3.1 General.** Due to the controversial nature of this projects and potential risks posed to the adjacent federal levee system, a robust review process will be implemented that will occur at several stages of design and incorporate several levels of reviews. In addition, an external agency review will also be conducted concurrent with design reviews.

**3.2 Reviews.** Design quality control reviews will be performed as indicated below. The reviews schedule will be developed and incorporated into the projects overall schedule provide in the PMP.

#### **3.2.1 Concept Phase.**

##### **Reviews:**

- ☐ Peer Review
- ☐ PDT Interdisciplinary Review

##### **Products available for Review:**

- ☐ Alternatives Assessment. Includes concept plans, rough quantities & concept level discussion, typically 1 page plans.

##### **Documentation:**

- ☐ Sign-off sheets
- ☐ Comments (written, marked up drawings, etc.)

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### 3.2.2 Project Information Report Phase.

#### **Reviews:**

- ☐ Peer Review
- ☐ PDT Interdisciplinary Review
- ☐ Supervisory Interdisciplinary Review
- ☐ Agency Technical Review will be conducted concurrent with the Supervisory Interdisciplinary Review

#### **Products available for Review:**

- ☐ Project Information Report. Includes Hydrologic Engineering Branch and GES Branch design analysis of proposed alternative, 60% level drawings, current working estimate, list of required specification, operations and maintenance key considerations.

#### **Documentation:**

- ☐ Sign-off sheets
- ☐ Comments (Dr CHECKS will be utilized for all significant comments for interdisciplinary reviews, other written comments, marked up drawings, etc.)

### 3.2.3 90% Design Phase.

#### **Reviews:**

- ☐ Peer Review
- ☐ PDT Interdisciplinary Review
- ☐ Supervisory Interdisciplinary Review/BCOE Review (Conducted concurrently)
- ☐ Agency Technical Review will be conducted concurrent with the Supervisory Interdisciplinary Review

#### **Products available for Review:**

- ☐ Project Information Report. Includes Hydrologic Engineering Branch and GES Branch design analysis of proposed alternative, 90% level drawings and specifications, current working estimate, draft operations and maintenance manual.

#### **Documentation:**

- ☐ Sign-off sheets
- ☐ Comments (Dr CHECKS will be utilized for all significant comments for interdisciplinary reviews, other written comments, marked up drawings, etc.)

**3.2.4 Plan-in-Hand Review.** A Plan-in-Hand review is not required for this project. Site surveys are current and the site is frequently visited by design staff so no unexpected conditions are anticipated.

**3.2.5 Lessons Learned Review.** A formal lessons learned review is not planned for this project because similar projects utilizing the same construction techniques and contract drawings and specifications have been executed without significant issue. Lessons learned from these past projects have been incorporated into current contract documents.

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**3.3 Quality Control Documentation Retention/Stewardship.** The Technical Lead is responsible for maintaining all review certification sheets, written comments, marked up documents, and/or any other quality control related documents until the final product has been approved. All review certification sheets and formal written comments (e.g., DrCHECKS) will be retained in the permanent project file maintained by the Technical Lead).

**3.4 Value Engineering Study.** A Value Engineering Study is not required for this project. The Missouri River Recovery program has conducted a programmatic VE study, Missouri River Recovery Program – Mitigation Project Including Shallow Water Habitat (March 2009) that is applicable to this site.

**3.5 Final Engineering Division Product Approval.** The Chief of Engineering Division will approve the final products, after all review comments have been addressed, through the signing of the Product Completion Certification Form, BCOES Certification, and drawings. Requests for final approval will be accompanied by the product, DQCP, review certifications and other appropriate documents (See ED Chief Approval Checklist)

**3.6 Forms.** The attached forms will be completed during the Engineering Division Quality Control process.

- ☐ DQCP Review and Approval Certification
- ☐ Peer Review/Design Check Certification
- ☐ PDT Interdisciplinary Review Certification
- ☐ Supervisory Review Interdisciplinary Review Certification
- ☐ BCOE Review Certification
- ☐ Product Completion Certification
- ☐ BCOES Certification
- ☐ Drawing Signature Block
- ☐ Chief of Engineering Division In-House Developed Products Approval Checklist

#### **4. PDT INFORMATION**

**4.1 Project Manager:** Kelly Robinson, CENWO-PM-C

**4.2 Technical Lead and Lead Technical Organization:**

- ☐ James Wilson, Sediment and Channel Stabilization Section, Hydrologic Engineering Branch

**4.3 Engineering Division Project Delivery Team:** Provided below is the list of planned Engineering Division staffing on the PDT. In the event changes in the PDT are necessary, individuals of similar or greater qualifications and experience will replace current PDT members.

#### **Attachment 3**

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ENGINEERING DIVISION PDT		
<b>Hydrologic Engineering Branch</b>		
	James Wilson (TL)	CENWO-ED-HF
	John Moore	CENWO-ED-HF
	Robert Thomas	CENWO-ED-HB
<b>Geotechnical Engineering &amp; Science Branch</b>		
	Michael Jackson	CENWO-ED-GA
<b>Cost Estimating and General Engineering Branch</b>		
	David White	CENWO-ED-C
	Alex Garcia	CENWO-ED-C

**4.4 Engineering Division Design Review Team(s):** Provided below is the list of planned Engineering Division design team reviewers. In the event changes in the review team are necessary, individuals of similar or greater qualifications and experience will replace current PDT members.

ENGINEERING DIVISION DESIGN REVIEW TEAMS		
<b>Peer Reviews</b>		
	CENWO-ED-HF	Bill Smith
	CENWO-ED-HF	Joe Anderson
	CENWO-ED-HB	Mike Jones
	CENWO-ED-GA	Steve Taylor
<b>PDT Interdisciplinary Review</b>		
	CENWO-ED-HF	Jim Jones
	CENWO-ED-HB	Bill Schmidt
	CENWO-ED-GA	Richard Johnson
<b>Supervisory Interdisciplinary Review</b>		
	CENWO-ED-HF	Charles Brown
	CENWO-ED-HB	Paul Davis
	CENWO-ED-GA	Mark Miller
<b>BCOES Review</b>		
	The BCOES will be combined with Supervisory Interdisciplinary Review	

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### Attachment 3

# DQCP REVIEW AND APPROVAL CERTIFICATION

The undersigned certify that the Design Quality Control Plan meets the general requirements of Engineering Division's Quality Control Process for In-House Products and is approved.

Project:	
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Product(s):	
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Product Phase:	
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Project Manager:	
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Lead Technical Organization:	
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Lead Engineer/Architect:	
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Technical Discipline	PDT Member Supervisor	Signature	Date
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Technical Discipline	PDT Member Supervisor	Signature	Date
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Technical Discipline	PDT Member Supervisor	Signature	Date
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Technical Discipline	PDT Member Supervisor	Signature	Date
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**Lead Technical Organization Branch Chief Approval**

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Name	Signature	Branch	Date
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Name	Signature	Branch	Date
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Name	Signature	Branch	Date
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Name	Signature	Branch	Date
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## PEER REVIEW/DESIGN CHECK CERTIFICATION

The undersigned certify that they have conducted a peer review/design check of the noted product(s) to assess the application of methods, validity of assumptions, adequacy of basic data, correctness of calculations, completeness of documentation, and compliance with guidance and standards. Comments as appropriate were provided to the designer.

Project:			
Product(s):			
Product Phase:			
Project Manager:			
Lead Technical Organization:			
Lead Engineer/Architect:			
Discipline	Reviewer	Signature	Date

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## PDT INTERDISCIPLINARY REVIEW CERTIFICATION

The undersigned certify that they have conducted a PDT interdisciplinary review to ensure that the all elements are properly integrated and compatible and that the product is in general compliance with established policies, criteria, and engineering practice. Comments as appropriate were provided to the designers.

Project:			
Product(s):			
Product Phase:			
Project Manager:			
Lead Technical Organization:			
Lead Engineer/Architect:			
Discipline	PDT Member	Signature	Date

### **Attachment 3**

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## Attachment 6

# PLAN-IN-HAND REVIEW CERTIFICATION

The undersigned certify that they have conducted a plan-in-hand review to compare the completed plans with the current site characteristics. Comments as appropriate were provided to the designers.

[illegible]

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**SUPERVISORY INTERDISCIPLINARY REVIEW  
CERTIFICATION**

The undersigned certify that they have conducted a supervisory interdisciplinary review to ensure that the all elements are properly integrated and compatible and that the product is in general compliance with established policies, criteria, and engineering practice. Comments as appropriate were provided to the designers.

[illegible]

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**Attachment 8**

## BCOES REVIEW CERTIFICATION

The undersigned certify that they have conducted a review to assess biddability, constructability, operability, environmental, and sustainability aspects of the project. Comments as appropriate were provided to the designers.

Project:	
Product(s):	
Product Phase:	
Project Manager:	
Lead Technical Organization:	
Lead Engineer/Architect:	

Discipline	Reviewer	Signature	Date

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## PRODUCT COMPLETION CERTIFICATION

The undersigned certify that this product is in general compliance with established policies, criteria, and engineering practice. Reviews have been conducted and all significant conflicts and comments have been resolved. This product meets the requirements for the intended purpose of the project.

Project:			
Product(s):			
Product Phase:			
Project Manager:			
Lead Technical Organization:			
Lead Engineer/Architect:			
Discipline	PDT Member	Signature	Date
Engineering Division Branch Chiefs Approvals			
Name	Signature	Branch	Date
Chief of Engineering Division Approval			
Name	Signature	Date	

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Corps of Engineers, Omaha District  
1616 Capitol Avenue  
Omaha, Nebraska 68102

BCOES Certification

1. Reference. ER 415-1-11, Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review.

2. Project Name: \_\_\_\_\_  
Project Type (D-B RFP, In-house Design, etc): \_\_\_\_\_  
Project #/Solicitation #: \_\_\_\_\_  
Location/ Installation: \_\_\_\_\_

3. I certify that the *(state if it a final design-bid-build package, design-build RFP package, etc)* has been reviewed for biddability, constructability, operability, environmental, and sustainability (BCOES) requirements in accordance with ER 415-1-11. Comments have been incorporated into the bidding documents as considered appropriate. There are no known modifications.

\_\_\_\_\_  
Project Manager

\_\_\_\_\_  
Date

4. The undersigned certify that all appropriate biddability, constructability, operability, environmental and sustainability comments received and reviewed by these offices have been incorporated into subject bid package, as required by the referenced regulations. Feedback has been provided to reviewers for all comments.

\_\_\_\_\_  
Chief, Operations Division (Where appropriate)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Planning Division (Where appropriate)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Real Estate Division (Where appropriate)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Construction Division

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Engineering Division

\_\_\_\_\_  
Date

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CENWO-PM-??

DD MMM YYYY

MEMORANDUM FOR CT-??

SUBJECT: Project ??XX??. Waiver of BCOES Certifications Required for Advertising

PROJECT: ?

1. References. ER 415-1-11, Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review.

2. This project does not meet Certification Requirements for Advertisement (Waiver Required).

3. Due to enclosed constraints, an exception is authorized to advertise concurrent with completion of the biddability, constructability, operability, environmental, and sustainability review. Bids will not be opened until certifications are completed and changes are incorporated in the bid package.

**Recommend:**

\_\_\_\_\_  
Project Manager

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Operations Division (Where appropriate)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Planning Division (Where appropriate)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Real Estate Division (Where appropriate)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Construction Division

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Engineering Division

\_\_\_\_\_  
Date

**Approved:**

\_\_\_\_\_  
Commander

\_\_\_\_\_  
Date

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US Army Corps  
of Engineers  
Omaha District

# PROJECT TITLE (EXTRA) PROJECT TITLE (MAIN) PNXXXXX (FYXX)

BASE OR CITY  
STATE


*EXAMPLE*

SOLICITATION NO. W9128F-1X-B-XXXX  
CONTRACT AWARD NO. W9128F-1X-C-XXXX

DESIGN PHASE

THIS PROJECT WAS DESIGNED BY THE OMAHA DISTRICT OF THE US ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-6152. SIGNATURES AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF DRAWINGS IN THIS SET.

CHIEF, GEOTECHNICAL ENGINEERING AND SCIENCES BRANCH	DATE	SUBMITTED BY:	RA	SECTION
		CHIEF:	AMCH	SECTION
		SUBMITTED BY:	PE	SECTION
		CHIEF:	CHAL	SECTION
		SUBMITTED BY:	PE	SECTION
		CHIEF:	ALPOT	SECTION
CHIEF, DESIGN BRANCH	DATE	SUBMITTED BY:	PE	SECTION
		CHIEF:	BRCH	SECTION
		SUBMITTED BY:	PE	SECTION
		CHIEF:	BRCH	SECTION
CHIEF, HYDROLOGIC ENGINEERING BRANCH	DATE	SUBMITTED BY:	PE	SECTION
		CHIEF:	HYCH	SECTION
		SUBMITTED BY:	PE	SECTION
		CHIEF:	HYCH	SECTION

  
**US Army Corps  
of Engineers**

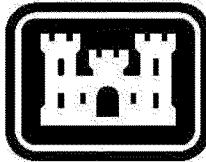
Example Drawing Cover Sheet w/ Signature Block

## Attachment 3

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## Attachment 12

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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">CHIEF, GEOTECHNICAL ENGINEERING AND SCIENCES BRANCH</td> <td style="width: 30%;">DATE</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td>CHIEF, DESIGN BRANCH</td> <td>DATE</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td>CHIEF, HYDROLOGIC ENGINEERING BRANCH</td> <td>DATE</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td>CHIEF, ENGINEERING DIVISION, P.E.</td> <td>DATE</td> </tr> </table>	CHIEF, GEOTECHNICAL ENGINEERING AND SCIENCES BRANCH	DATE			CHIEF, DESIGN BRANCH	DATE			CHIEF, HYDROLOGIC ENGINEERING BRANCH	DATE			CHIEF, ENGINEERING DIVISION, P.E.	DATE	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">SUBMITTED BY:</td> <td style="width: 50%;">RA</td> </tr> <tr> <td>CHIEF: ARCH</td> <td>SECTION</td> </tr> <tr> <td>SUBMITTED BY:</td> <td>PE</td> </tr> <tr> <td>CHIEF: CIVIL</td> <td>SECTION</td> </tr> <tr> <td>SUBMITTED BY:</td> <td>PE</td> </tr> <tr> <td>CHIEF: ELECT</td> <td>SECTION</td> </tr> <tr> <td>SUBMITTED BY:</td> <td>PE</td> </tr> <tr> <td>CHIEF: ENVR</td> <td>SECTION</td> </tr> <tr> <td>SUBMITTED BY:</td> <td>PE</td> </tr> <tr> <td>CHIEF: MECH</td> <td>SECTION</td> </tr> <tr> <td>SUBMITTED BY:</td> <td>PE</td> </tr> <tr> <td>CHIEF: STRUCT/INTER</td> <td>SECTION</td> </tr> <tr> <td>SUBMITTED BY:</td> <td>PE</td> </tr> <tr> <td>CHIEF: GEOT</td> <td>SECTION</td> </tr> <tr> <td>SUBMITTED BY:</td> <td>CADD</td> </tr> <tr> <td> </td> <td>PROJECT COORD.</td> </tr> </table>	SUBMITTED BY:	RA	CHIEF: ARCH	SECTION	SUBMITTED BY:	PE	CHIEF: CIVIL	SECTION	SUBMITTED BY:	PE	CHIEF: ELECT	SECTION	SUBMITTED BY:	PE	CHIEF: ENVR	SECTION	SUBMITTED BY:	PE	CHIEF: MECH	SECTION	SUBMITTED BY:	PE	CHIEF: STRUCT/INTER	SECTION	SUBMITTED BY:	PE	CHIEF: GEOT	SECTION	SUBMITTED BY:	CADD		PROJECT COORD.	 <h1 style="font-size: 4em; margin: 0;">EXAMPLE</h1> <h2 style="font-size: 2em; margin: 0;">US Army Corps of Engineers Omaha District</h2>
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	PROJECT COORD.																																															

### EXAMPLE COVER SHEET SIGNATURE BLOCK

The section chief signature blocks will be adjusted to reflect those sections that submit drawings as part of the overall drawing set.

Branch chiefs whose branches are typically involved in in-house designs as shown in the signature block above. If other Engineering Division branch chiefs are involved, their signature block would need to be included.

The signature block, endorsed by all applicable Branch and Section Chiefs, should be submitted for Chief of Engineering Division signature concurrent with the BCOE certification.

Once signed, the signature block will be inserted onto the cover sheet of the drawing set for advertisement and award.

### Attachment 3

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## CHIEF OF ENGINEERING DIVISION IN-HOUSE DEVELOPED PRODUCTS APPROVAL CHECKLIST

Project:	
Product(s):	
Product Phase:	
Project Manager:	
Lead Technical Organization:	
Lead Engineer/Architect:	
Engineering products requiring Chief of Engineering Division signature on drawings, BCOE certification, or non-construction product certification of completion should be routed for signature with the following items as applicable.	
<div style="padding-left: 20px;"> <input type="checkbox"/> Project Management Plan   <input type="checkbox"/> Design Quality Control Plan (DQCP), if separate from the PMP   <input type="checkbox"/> Final Product(s) (e.g., Design Documentation Report, Plans, Specifications, O&amp;M Manual, Engineering Considerations and Instructions for Field Personnel).   <input type="checkbox"/> Drawing Signature Block Ready for Chief of Engineering Division's Signature (if applicable)   <input type="checkbox"/> Current Working Estimate (CWE)   <input type="checkbox"/> Signed Review Certification Form(s) as required in DQCP   <input type="checkbox"/> Review Comments (DrChecks and other comment management processes)           <div style="margin-left: 20px;"> <input type="checkbox"/> Summary page indicating all comments closed.  <input type="checkbox"/> Individual review comments and responses.           </div>   <input type="checkbox"/> Product Completion Certification Form for Chief of Engineering Division's Signature   <input type="checkbox"/> BCOES Certification Form Ready for Chief of Engineering Division's Signature (if applicable)         </div>	

**Attachment 3**

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**Risk Register**

**Attachment 14**

Refer to the following pages.

**Attachment 3**

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Project	Non-structural Flood Mitigation Assessment for ??? Project					
Product	Feasibility Study					
Product Phase	Feasibility Study Report					
Project Manager	Joe Smith					
Lead Technical Organization	Flood Plain and Flood Risk Management					
Lead Engineer/Architect	Joe Anderson					
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results	Severity, frequency, duration of impact on study success or project outcomes.		PDT Discussions & Conclusions (including logic & experience with prior studies)
<b>Hydrology &amp; Hydraulics</b>						
Risk #	Risk Description	Consequences and source	Likelihood of Occurring	Impact	Risk Rating (0-5)	Notes
1	Limited hydraulic modeling	The study will utilize existing models that do not fully cover study area. Evaluation will be done by interpolating between models. This will cause greater uncertainty in Stage-Frequency analysis and economic analysis	Very Likely	Marginal	3	Estimates of mean damages are not greatly affected. Median damages are more varied, and range about median is larger. Additional uncertainty in stage-flow in a large range of damages for reach flood event. This will be accounted for in HEC-FDA analysis when evaluating alternatives.
<b>Environmental</b>						
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.		PDT Discussions & Conclusions (including logic & experience with prior studies)
Risk #	Risk Description	Risk Cause/Event	Likelihood of Occurring	Impact	Risk Rating (0-5)	Notes
1	Ar EIS may be required rather than the assumed EA	Discovery of significant impacts, which would trigger an EIS.	Unlikely	Marginal	1	Have environmental information about the study area, PDT doesn't anticipate any significant effects to significant resources that would trigger an EIS. Costs would increase if elevated to an EIS.
2	Site-specific environmental investigations during PED may render individual measures unavailable at specific sites when they were assumed to be available	Inability to conduct site-specific environmental investigation (wetlands, T&E species, etc.) at all potential features due to feasibility time constraints.	Likely	Negligible	1	It seems likely that there will be environmental conditions for at least a few individual sites that would require changes in recommended measures, or even the elimination of all feasible measures at a site. Site visits during PED will bring to light any impacts, PDT would evaluate environmental considerations as needed.
<b>Economics</b>						
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.		PDT Discussions & Conclusions (including logic & experience with prior studies)
Risk #	Risk Description	Risk Cause/Event	Likelihood of Occurring	Impact	Risk Rating (0-5)	Notes

### Attachment 3

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 NWO QMS Engineering Quality Control Process for In-house Projects/Products 112 of 150

1	Structure inventory	Low level of detail in some parts of study area. Structure types estimated with aerial imagery. Foundation heights will be estimated using averages by type. This will create more uncertainty in damage estimates.	Very Likely	Marginal	3	High resolution LIDAR is available for entire study area. This will improve the accuracy of first floor elevations. A lot of detail about structure values is available for the region from the xxxx Study. Estimates are not greatly affected. Median damages are more varied, and range about median is larger. First floor elevations are largest determinant in structure damages.
2	Non-structural measures	will come from aerial imagery, it is possible to misidentify structures. This would result in structures being recommended in non-structural alternatives with inaccurate information	Very Likely	Significant	4	Structures that were mistakenly identified as feasible during the feasibility study can be removed from consideration in PED. Structures that were not considered feasible will not be revisited in PED
3	Non-structural measures (2)	Structures that are inaccurately identified as feasible will not be implemented in construction phase. Many stakeholders could potentially be contacted and told they are candidates for non-structural measures before the mistake is corrected. This could cause general discontentment	Very Likely	Critical	5	Economic guidance requires using depreciated replacement values.
4	Authorized project cost	A large non-structural plan would need to be implemented on a site by site basis. A complete and functioning flood risk management feature may be fully implemented in some sites before others. If the WRDA section 902 maximum project cost were to be exceeded before the full alternative was implemented some stakeholders would have benefited and others would not. At that point, the USACE and local sponsors would likely halt the project, rather than seek new authorization. This would raise questions about favoritism and fairness in the implementation of the project	Unlikely	Critical	3	Normally, HEC-FDA would handle this, but if we do not use that software, we may have to measure risk in an external software package
<b>Recreation</b>						
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.	PDT Discussions & Conclusions (including logic & experience with prior studies)	
Risk #	Risk Description	Risk Cause/Event	Likelihood of Occurring	Impact	Risk Rating (0-5)	Notes
1	No recreation features are proposed as part of the project	Since recreation features will not be evaluated, it is possible that recreation opportunities will be missed.	Very Unlikely	Negligible	0	No recreation features should have no impact on the overall project.
<b>Geotechnical</b>						
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.	PDT Discussions & Conclusions (including logic & experience with prior studies)	
Risk #	Risk Description	Risk Cause/Event	Likelihood of Occurring	Impact	Risk Rating (0-5)	Notes

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1	Limited geotechnical borings done for the project area	Some measures may not be technically feasible.	Unlikely	Marginal	1	Soil formations are similar across the basin. PD has geotechnical information for the area and soils in the area are similar, unlikely to have different findings. Additional borings could be done during the PED phase.	
<b>Cost Estimating</b>							
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.		PDT Discussions & Conclusions (including logic & experience with prior studies)	
Risk #	Risk Description	Risk Cause/Event	Likelihood of Occurring	Impact	Risk Rating (0-5)		Notes
1	Estimates for Non-Structural measures	Estimates for non-structural measures will not be done on a site by site basis. Instead, general unit costs will be applied to measures based on type of structure, and scale of measure. This will lead to more uncertainty in alternative cost estimates.	Very Likely	Marginal	3		
2	Estimates for Non-Structural Alternatives	Since limited data is available for many structures, some may be eliminated after feasibility and before implementation. This would tend to make the cost estimate for alternatives inaccurate.	Very Likely	Significant	4		Close coordination with the NFPC could buy down risk by using costs from previous work.
<b>HTRW</b>							
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.		PDT Discussions & Conclusions (including logic & experience with prior studies)	
Risk #	Risk Description	Risk Cause/Event	Likelihood of Occurring	Impact	Risk Rating (0-5)		Notes
1	Phase 1 HTRW surveys	HTRW potential near farmsteads.	Unlikely	Marginal	1		Based on information from parts of the basin and information from other projects in the basin, significant HTRW impacts are unlikely and can be addressed once sites for non-structural are identified.
2	Site-specific HTRW surveys are not possible for all construction sites during feasibility	Undiscovered HTRW sites may be encountered during PED or construction.	Unlikely	Marginal	1		If contaminants are discovered during construction, work would cease and mitigation of the contaminants would be needed. This could delay project completion.
<b>Civil</b>							
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.		PDT Discussions & Conclusions (including logic & experience with prior studies)	
Risk #	Risk Description	Risk Cause/Event	Uncertainty	Likelihood	Risk Rating (0-5)		Notes
1	Reliance on existing structures strengths/conditions to withstand selected measures	Assume all structures would be eligible to be mitigated (e.g., raise, move) but some may not be able to upon further inspection would then need to re-evaluate the selected alternative for that structure	Likely	Marginal	2		May need to re-evaluate the selected alternative which will increase costs and take additional time.
<b>Real Estate</b>							
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.		PDT Discussions & Conclusions (including logic & experience with prior studies)	

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 NWO QMS Engineering Quality Control Process for In-house Projects/Products 114 of 150

Risk #	Risk Description	Risk Cause/Event	Likelihood of Occurring	Impact	Risk Rating (0-5)	Notes
1	Utility Relocations	Delay in Project Schedule	Likely	Marginal	2	Utilities found within any of the ROW that will require relocation.
2	Willing landowners are needed	Project is only successful if there are willing participants	Likely	Critical	5	Landowner participation is the critical key to success of mitigation. Lack of participation will lead to an unsuccessful project.
3	Extensive RE Acquisitions	Delay in AcqSch/ProjSch	Unlikely	Critical	3	No acquisitions should be needed, but a recommended alternative may entail working with hundreds or thousands of landowners.
<b>Plan Form</b>						
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.	PDT Discussions & Conclusion (including logic & experience with prior studies)	
Risk #	Risk Description	Risk Cause/Event	Likelihood of Occurring	Impact	Risk Rating (0-5)	Notes
1	Merging guidance being provided with the new paradigm process	How study progresses, doing work over increases costs and shifts the schedule.	Very Likely	Significant	5	If we know what the vision is, we can look for ways to produce those results or document why that vision can not be achieved and offer an alternative. We can involve the vertical teams early and often involved when decisions are being made. We have also established lines of communication between the planners on other pilot studies to facilitate the prompt sharing of lessons learned.
2	ATR for pilot studies with "regular" ATR	same indoctrination process into the new paradigm and will face the same problems as the ATR team has not had the time to prepare for not knowing what is expected until they make a submittal. Will increase costs and shift the schedule.	Likely	Significant	4	May be able to buy down the risk if we identify the ATR members quickly and bring them into the ongoing planning process along with the active PDT members.
3	Waivers needed for planning guidance	Since this is going to be "fast planning", some areas may need waivers from current planning guidance. Will increase costs and shift schedule.	Likely	Significant	4	Try to identify any potential waivers early and involve the vertical teams in decisions.
5	Feasibility schedule	Study is set to be complete, with Chief's Report, by December 2012. Slip schedule.	Likely	Significant	4	Schedule is critical need buy in from all levels early on the planning process and decreased level of detail.
<b>Cultural</b>						
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.	PDT Discussions & Conclusion (including logic & experience with prior studies)	
Risk #	Risk Description	Risk Cause/Event	Likelihood of Occurring	Impact	Risk Rating (0-5)	Notes
1	Site-specific cultural investigations during PED may render individual measures unavailable at specific sites when they were assumed to be available.	Inability to conduct site-specific cultural investigation at all potential features due to feasibility time constraints.	Likely	Marginal	2	Based on cultural work completed in the area, there is potential for cultural resources to be found, but not many would likely be eligible for listing on the National Register or would require substantial mitigation. Alternatives may actually protect cultural resources. Anything found during PED would require modification of site-specific measures and/or additional mitigation expense, and possibly render specific sites infeasible.
<b>Other</b>						

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# RISK MATRIX

		Impact				
		Negligible	Marginal	Significant	Critical	Crisis
Likelihood of Occuring	Very Likely	2	3	4	5	5
	Likely	1	2	4	5	5
	Unlikely	0	1	3	3	4
	Very Unlikely	0	0	1	2	4

## Attachment 3

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## Attachment 4

OSWER Directive 9272.0-17 UFP-QAPP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

JUN 7 2005

OFFICE OF  
SOLID WASTE AND EMERGENCY  
RESPONSE

MEMORANDUM

**SUBJECT:** OSWER DIRECTIVE 9272.0-17 Implementation of the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP) at Federal Facility Hazardous Waste Sites

**FROM:** Thomas P. Dunn Deputy Assistant Administrator

**TO:** Regional Administrators, Regions I–X

**PURPOSE:**

The purpose of this Directive is to transmit the final *Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP)*, and provide guidance to the Regions on this Policy, as appropriate, for all data activities at Federal facility hazardous waste sites.

This Policy is the result of the work of the Intergovernmental Data Quality Task Force (IDQTF), chaired by the Director of the Federal Facilities Restoration and Reuse Office (FFRRO). It reflects significant input from and review by a wide variety of EPA Headquarters offices, by every EPA Regional Office, as well as EPA's partners in this endeavor -- the Department of Defense (DOD) and the Department of Energy (DOE)<sup>1</sup>. The Policy is designed to:

1. The IDQTF includes representatives of the following headquarters offices: OSWER (Office of Superfund Remediation and Technology Innovation, Office of Solid Waste, Federal Facilities Restoration and Reuse Office), Office of Environmental Information (Quality Staff), and Office of Air and Radiation (Office of Radiation and Indoor Air). Although all regions participated on some level, active members of the workgroup came from Regions 1, 2, 3, 5, 6, 7, and 8. In addition, the UFP-QAPP went through two cycles of comprehensive review by all Regions (both Quality Assurance Managers and Hazardous Waste Programs). Finally, all of the military components (Navy, Air Force and Army) participated in the workgroup, as well as representatives from DOE.

- Assure the integration of quality principles in all Federal facility projects that require environmental data activities and use.
- Streamline document preparation, review and approval by:
  - Encouraging involvement of an appropriate multi-disciplinary project planning team in the development of the QAPP
  - Recommending a consistent content and format
  - Establishing an agreed starting point of minimum QA/QC specifications for environmental data activities conducted under CERCLA.
- Save time and money in project execution by assuring that data of appropriate quality are collected to make the decisions required by the project
- Assure consistency with Directives of other federal organizations.

## BACKGROUND:

In 1997, a report from the EPA Inspector General (Audit Report No. E1 SKB6-09-004107100132) examined laboratory data quality at a limited number of Federal facility National Priorities List (NPL) Superfund sites. An audit report from the DOD Office of Inspector General (OIG Report 97-098, Laboratory Support Service for Environmental Testing, February 21, 1997) addressed similar issues. These reports found real or perceived inconsistencies and deficiencies in data quality within and across government organizations that resulted in greater costs, time delays, and the potential that some site risks remain unaddressed.

In response to these audit reports related to Federal facilities, at the direction of the Assistant Administrator for OSWER, the Federal Facilities Restoration and Reuse Office convened the first meeting of the IDQTF in the fall of 1997. The focus of the IDQTF is to comprehensively address problems and issues related to the management of environmental data quality at Federal facilities. The consensus mission of the IDQTF is “To document an intergovernmental quality system beginning with the hazardous waste programs.” Two products implement this stated mission.

The first product of the IDQTF -***Uniform Federal Policy for Implementing Environmental Quality Systems*** (UFP-QS) implements Section 5 of the national consensus standard *Quality Systems for Environmental Data and Technology Programs* (ANSI/ASQ E4) and parallels EPA’s quality system (*Policy and Program Requirements for the Mandatory Agency-wide Quality System, 5360.1.A2, May 2000*). The UFP-QS was signed by the three agencies represented on the IDQTF in January 2003. The second product – ***The Uniform Federal Policy for Quality Assurance Project Plans*** (UFP-QAPP) – implements Section 6 of E4, and was completed by the IDQTF in July 2004. It has been approved by DOD and is consistent with the QAPP requirements outlined in Chapter 5 of EPA Order 5360.1 A2, and EPA’s *Guidance for Quality Assurance Project Plans* (QA/G-5).

Both IDQTF Policies are based on established requirements. The National Technology Transfer and Advance Act and OMB Circular A-119 urge federal departments and agencies to



adopt national consensus standards such as ANSI/ASQ E4 when they are suitable. Federal Acquisition Regulation 46.202-4 specifically cites ANSI/ASQ E4 as an acceptable higher level contract quality standard. EPA Order 5360.1 A2 is also based on ANSI/ASQ E4. The Office of the Secretary of Defense is currently in the concurrence process for a DOD Instruction that will require defense components to adopt the UFP-QAPP as the basis for future data activities planning and execution. The DOD Instruction is analogous to an OSWER Directive.

The UFP-QAPP documents were drafted by a subgroup of the IDQTF over the past five years. The point of departure for the UFP-QAPP Manual and associated workbook was the EPA Region 1 QAPP guidance. The UFP-QAPP consists of four related documents.

Part 1 - UFP-QAPP Manual provides policy on the preparation and implementation of QAPP documents. It sets out steps that address how a QAPP should be prepared, approved and implemented for all environmental data activities projects. It also provides guidance on how to integrate technical and quality control aspects of a project throughout its life cycle, including planning, implementation, documentation, assessment and corrective actions.

Part 2 of the UFP-QAPP provides supplementary materials for use with the UFP-QAPP Manual:

- Part 2A, “QAPP Workbook,” contains recommended worksheets that are designed to assist in the preparation of QAPPs by addressing specific requirements of the Manual.
- Part 2B, “Quality Assurance/Quality Control (QA/QC) Compendium: Minimum QA/QC Activities,” describes minimum QA/QC specifications recommended for CERCLA environmental investigations, depending upon the use of the data. These minimum recommended specifications are designed to facilitate collaboration at sites by promoting a consistent set of specifications that can be tailored by the project team to meet the quality objectives of individual projects. These specifications may be supplemented by additional parameters based on site-specific needs. The basis for these recommended specifications was extensive information collected from EPA Regions, DOD and DOE on existing written QA/QC policies and analysis of the value added nature of the potential range of QA/QC specifications.
- Part 2C, “Example QAPPs,” provides several sample QAPPs that demonstrate use of the recommended UFP-QAPP worksheets to prepare a QAPP.

## **IMPLEMENTATION:**

### **Scope**

The documents transmitted with this Directive apply specifically at Federal facilities. The UFP-QAPP documents also may be considered more broadly for data activities projects conducted under CERCLA and RCRA. Regions are strongly encouraged to consider the use of the UFP-QAPP for other purposes. The UFP-QAPP is designated for use in Federal facility projects where environmental data are collected. It has been designed to be applicable for all

environmental data activities related to hazardous waste investigations (e.g., for the purpose of cleanup under the CERCLA program and the RCRA corrective action program), as well as data activities related to the active management of hazardous waste generated by RCRA facilities.

For purposes of this Directive, Federal facility projects include all projects for which a Federal agency (e.g., DOD, DOE) or its components are responsible. It includes all Base Realignment and Closure Act (BRAC) related projects, and those Formerly Used Defense Sites (FUDS) or Formerly Used Sites Remedial Action Program (FUSRAP) related projects where the U.S. Army Corps of Engineers is the lead project manager.

The QA/QC Compendium (Part 2B of the UFP-QAPP) was developed for and should be used for CERCLA actions. In many cases, the decisions being made under the RCRA Corrective Action program should be analogous to the decisions of the CERCLA program, and the QA/QC specifications outlined in the QA/QC Compendium should be suitable for RCRA cleanups, as well as CERCLA.

The EPA Regions are asked to immediately begin implementing as appropriate, the UFP-QAPP Manual and its associated documents. Regions should consider:

- Application of the UFP-QAPP (content, outline, and format) to all new QAPPs and substantially revised QAPPs.
- Application of the minimum QA/QC specifications to CERCLA actions
- Encouragement of the use of the UFP-QAPP tools to facilitate and streamline review of QAPPs.

Compliance with the UFP-QAPP (form, content, and minimum QA/QC specifications) will be considered to be adequate conformance with EPA's QA/G-5 and any Regional guidance on the preparation of QAPPs. The UFP-QAPP supersedes existing Region-specific QAPP guidance for Federal facility hazardous waste activities. The Regional EPA office remains responsible for ensuring that the content of the QAPP provides a quality of data suitable to the needs of the specific project for which it was prepared.

The UFP-QAPP is a voluntary standard that has been approved by the Department of Defense. The Department of Energy is in the process of considering formal adoption and FFRRO will encourage other agencies to use the UFP-QAPP. Implementation of the UFP-QAPP is the responsibility of those Departments upon adoption and is not subject to notices of violation (NOV). Implementation will be phased in by the other Departments depending on the requirements of procurement actions and other factors.

FFRRO will be evaluating implementation of the UFP QAPP. Performance evaluation measures and tools will be transmitted to Regional Superfund and RCRA Division Directors in the near future by the Director of FFRRO.

## **Implementation Assistance:**

Several tools have been jointly developed by EPA and DOD to assist in the implementation of the UFP-QAPP. A training program on the UFP-QAPP has been developed and pilot tested at four EPA Regions. It will be offered periodically (see the FFRRO Web site for future opportunities). Electronic worksheets to facilitate preparation of QAPPs based on the UFP-QAPP are available on the FFRRO Web site [http://epa.gov/fedfac/documents/intergov\\_qual\\_task\\_force.htm](http://epa.gov/fedfac/documents/intergov_qual_task_force.htm), as are all the documents referenced in this Directive.

## **CONCLUSION:**

The UFP-QAPP is the product of an extensive collaborative effort by management and working level EPA, DOD and DOE personnel. It was created to address the real and perceived inconsistencies and deficiencies in data quality that result in greater costs, time delays, and the potential for response actions that result in unaddressed risk. The UFP-QAPP employs a graded approach designed to encourage a level of detail consistent with the scope and complexity of the project. It is a tool that can be used cost-effectively for many different projects.

If you have any questions about the UFP-QAPP or its implementation, please contact:

Mike Carter

Federal Facilities Restoration and Reuse Office

703-603-0046

[carter.mike@epa.gov](mailto:carter.mike@epa.gov)

Attachment

cc w/o attachment: Kim Nelson, OEI

Tom Skinner, OECA

Jeff Holmstead, OAR

Ben Grumbles, OW

Kathy Callahan, Region 2

RS&T Directors

Federal Facilities Leadership Council

Regional QA Managers

Superfund National Program Managers (Regions I–X)

RCRA National Program Managers (Regions I–X)

IDQTF Members

Attachment 4

## Attachment 5

### BCOE Certifications (Examples)

## BCOE REVIEW CERTIFICATION

The undersigned certify that they have conducted a review to assess biddability, constructibility, operability, and environmental aspects of the project. Comments as appropriate were provided to the designers.

Project:			
Product(s):			
Product Phase:			
Project Manager:			
Lead Technical Organization:			
Lead Engineer/Architect:			
Discipline	Reviewer	Signature	Date

**Department of the Army  
Corps of Engineers, Omaha District  
1616 Capitol Avenue  
Omaha, Nebraska 68102**

**BCOE Certification**

1. Reference. ER 415-1-11, Biddability, Constructibility, Operability, and Environmental Review and OM 415-1-5.

2. Project Name: \_\_\_\_\_

Project #/Solicitation #: \_\_\_\_\_

Installation: \_\_\_\_\_

3. All final design and BCOE Reviews have been completed. Comments have been incorporated into the bidding documents as considered appropriate. There are no known modifications.

\_\_\_\_\_  
Project Manager

\_\_\_\_\_  
Date

3. The undersigned certify that all appropriate biddability, constructibility, operability, and environmental comments received and reviewed by these offices have been incorporated into subject bid package, as required by the referenced regulations. Feedback has been provided to reviewers for all comments.

\_\_\_\_\_  
Chief, Operations Division (Civil O&M Only)

\_\_\_\_\_  
Date

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Chief, Construction Division

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Date

---

Chief, Engineering Division

---

Date

CENWO-PM-

DD MMM YYYY

MEMORANDUM FOR CT-

SUBJECT: Project Waiver of BCOE Certifications Required for Advertising

PROJECT:

1. Reference. ER 415-1-11, Biddability, Constructibility, Operability, and Environmental Review and OM 415-1-5.
2. This project does not meet Certification Requirements for Advertisement (Waiver required).
3. Due to enclosed constraints, an exception is authorized to advertise concurrent with completion of the biddability, constructibility, operability and environmental review. Bids will not be opened until certifications are completed and changes are incorporated in the bid package.

**Recommend:**

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Project Manager

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Date

---

Chief, Operations Division (Civil O&M Only)

---

Date



---

Chief, Construction Division

---

Date

---

Chief, Engineering Division

---

Date

**Approved:**

CENWO-PM

(DATE)

MEMORANDUM FOR CT

SUBJECT: BCOE Certification for AE Work

PROJECT:

SOLICITATION: Advertising date: Bid Opening  
Date:

The undersigned certify: This product is in general compliance with the AE's contract requirements, established policy, criteria and engineering practice, utilizes justifiable and valid assumptions and provides a reasonable product meeting customer requirements consistent with law and existing Corps policy. The appropriate level of coordination has taken place and all significant conflicts and comments have been resolved and in accordance with ER 415-1-11, all appropriate biddability, constructibility, operability and environmental review comments have been incorporated. Feedback has been provided to reviewers for all comments. The project meets Certification Requirements for Bid Opening.

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Construction Representative

---

Project Manager

---

Chief, Operations Division (Civil O&M Only)

---

Chief, Construction Branch, Construction Division

---

Chief, Construction Division

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Chief, Lead Branch, Engineering Division

---

Chief, Engineering Division P.E.

## Attachment 6

### Examples of Quality Assurance Team Certification and Quality Control Review Certification

## QUALITY ASSURANCE TEAM CERTIFICATION

**PROJECT:**

**PRODUCT:**

**PRODUCT PHASE:**

The undersigned certify that a quality assurance review has been conducted as defined in the Quality Assurance Plan. The contractor has completed quality control in accordance with the contractor Quality Control Plan. Quality control included review of: assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. All comments resulting from QA and contractor QC have been resolved.

DISCIPLINE	QAT MEMBER	SIGNATURE	DATE

EXAMPLE: Quality Control Review Certification

Quality Control Review Certification

(Insert specific name of HTRW Product here)

Project Title:

Date:

Contract No.:

Delivery Order No.: \_\_\_\_\_ Modification No:

Technical Coordinator:

In accordance with the Quality Control Plan for this project,  
independent review has been completed and all comments are  
resolved.

(Signature) (Date)

## Attachment 7

### OSWER Directive 9240-2C (ANSETS)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

**Directive # 9240.0-2C**

**November 14, 2002**

**MEMORANDUM**

**SUBJECT:** Tracking Superfund Non-CLP Analytical Data

**FROM:** Michael B. Cook //ss// Michael B. Cook  
Director, Office of Emergency and Remedial Response

**TO:** Superfund National Program Policy Managers  
Regional Science and Technology Division Directors

**Purpose**

This directive reinforces the requirement for nationally tracking non-Contract Laboratory Program (CLP) analytical services and supersedes OSWER Directives 9240.0-2A and 2B. The prior directives established the *Analytical Services Tracking System* (ANSETS) as a tracking system for non-CLP data, since the CLP already had extensive tracking procedures in place. It is still a requirement to submit data to ANSETS. However, the focus is primarily on tracking analytical data generated via EPA field contractors and their subcontractors at federal fund lead sites and at sites where EPA is the lead agency overseeing a federal facility cleanup under an Interagency Agreement. To aid in ANSETS data submission, the system has been updated, the reporting elements have been reduced, and various options (including FORMS II Lite™) are available to submit the required data. (See the FORMS II Lite™ Companion Directive # 9420.0-38 for additional details). Since ANSETS is not considered a self-reporting quality assurance tool, the EPA Regions need to provide this function. The Office of Emergency and Remedial Response (OERR) is also developing electronic tools to facilitate data review for non-CLP data.

**The Importance of ANSETS**

The Superfund program requires analytical data for critical decision making. Analytical data is used to demonstrate the nature and extent of contamination at hazardous waste sites, to assess response priorities based on risks to human health and the environment, to establish appropriate cleanup actions, and to determine the completion of remedial actions. The generation of technically sound and legally defensible data is of primary importance to Superfund for site decisions as well as to support enforcement actions and cost recovery. It is equally essential that the Regions ensure the appropriate quality assurance for analytical data and select the most cost effective contract vehicle.

The Field and Analytical Services Teaming Advisory Committee (FASTAC), which is comprised of managers from OERR, the Regional Science and Technology (RS&T) Divisions,



and the Regional Superfund Divisions, established a decision tree for selecting analytical services. In general, the RS&T Division laboratories (i.e., Tier 1) are the preferred option for special analytical services while the CLP (i.e., Tier 2) is the preferred option for routine analytical services. Region-specific analytical services contracts comprise Tier 3. The least preferred option (i.e., Tier 4) for obtaining analytical services is using subcontractors via field contracts such as Response Action Contracts (RACS), Superfund Technical Assessment and Response Team (START), Emergency and Rapid Response Services (ERRS), and other headquarters or regional contracts. EPA's concerns with Tier 4 include lack of direct oversight of these contractors, quality assurance potentially not meeting EPA standards, and often higher costs. By requiring contractors to use the ANSETS tracking system, the Superfund program can determine whether the FASTAC strategy is being implemented, analyze trends in new services needed, track national laboratory analyses acquired for the Superfund program, and plan for quality assurance oversight.

### **Scope of ANSETS Requirements**

Although the majority of the Regions are submitting ANSETS data, there appears to be under-reporting, and not all contractors are complying with the requirement. This new Directive is aimed at reinvigorating analytical services information collection from all EPA field contractors (e.g., RACS, START, ERRS) and their subcontractors at federal fund lead sites and at sites where EPA is the lead agency overseeing federal facility cleanups under an Interagency Agreement (i.e., Tier 4).

RS&T Division laboratories (i.e., Tier 1) do not need to comply with the ANSETS requirements. The Regions have the option of reporting data generated from their Region-specific analytical services contracts (i.e., Tier 3).

State-funded sites and Potentially Responsible Parties (PRPs) do not need to comply with ANSETS data submission, although regional management should establish (or continue) regional systems to track and oversee PRP analytical services. Tracking PRP data is an important step to take, especially in light of past problems with potentially fraudulent data and difficulty in tracking down affected sites.

### **Procedures for Submitting ANSETS Data**

The Regions should use their discretion to determine the most appropriate steps needed to fulfill the ANSETS data submission requirement. There are four major mechanisms to submit ANSETS data to OERR:

- FORMS II Lite™ (preferred) - FORMS II Lite™ automates sampling field documentation and exports the data electronically. The export file from FORMS II Lite™ captures the essential ANSETS data and is the most direct and effective method to meet the ANSETS requirements. Samplers can use FORMS II Lite™ for sampling events and to submit the export file electronically via the Internet.
- Web-Based Submission Form - Contractors can submit the ANSETS data by completing the web-based form and submitting the data via the Internet.
- ANSETS Standalone Desktop Application- Contractors submit data to the Regions. The Regions use the desktop application to manage and submit the ANSETS data to OERR.
- Batch submissions - Contractors submit data to Regional tracking systems. The Regions then batch the data and provide it bi-monthly to OERR.

Detailed instructions and procedures for submitting ANSETS data can be found at:  
<http://www.epa.gov/superfund/programs/clp/ansets.htm>.

### **Suggested Contract Language for EPA Contracts, Cooperative Agreements, and Interagency Agreements**

Attachment 1 provides additional details and suggested language to modify EPA contracts, Cooperative Agreements, and Interagency Agreements. Attachment 2 lists the required data for ANSETS submission. Amendments to State cooperative agreements and federal facility interagency agreements for EPA-lead cleanups may also be required. Each Region should amend its major assessment and response contracts (e.g., RACS, START, ERRS) that provide analytical services to ensure the ANSETS requirements can be met. Regional modifications may be needed to accommodate Region-specific needs. In instances where FORMS II Lite™ will be used to meet the ANSETS requirement, contractors shall provide the equipment necessary to operate FORMS II Lite™. Contract language for the FORMS II Lite™ requirement and information on the software and training can be found in Directive # 9420.0-38. OERR recommends the contract amendments for the FORMS II Lite™ and ANSETS requirements be made at the same time. The ANSETS requirements should be in place by January 1, 2003.

### **Next Steps**

Regional Contracting Officers and Project Officers will need to amend their assessment and response contracts to reinforce the ANSETS analytical services tracking requirements. Regions need to designate a person to serve at the ANSETS liaison with Headquarters to ensure compliance. The Regional ANSETS liaison needs to work closely with site managers to ensure the analytical contractors are reporting data to ANSETS. Please send the name of the ANSETS liaison to Dana Tulis by December 10, 2002. OERR will continue to provide summary ANSETS reports to the Regions every two months.

Thank you for your cooperation in improving compliance with the ANSETS requirement. Please call Dana Tulis at 703-603-8993 for general policy issues and Willie Wong at 703-603-8846 for technical questions.

### **Attachments**

CC:

Field and Analytical Services Teaming Advisory Committee  
Superfund Senior Regional Management and Acquisition Council  
Regional Lab Directors  
Regional Quality Assurance Managers  
CLP Project Officers  
Regional Sample Control Center Coordinators  
RACs, START, ERRS Contract Officers/Project Officers  
OERR Senior Management Team

## Attachment 8

### OSWER Directive 9420.0-38 (FORMS II Lite)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
SOLID WASTE AND EMERGENCY  
RESPONSE

**November 14, 2002**

**Directive # 9420.0-38**

**MEMORANDUM**

**SUBJECT:** FORMS II Lite™ Role in Tracking Superfund Sampling Data

**FROM:** Michael B. Cook, //ss// Michael B. Cook  
Director, Office of Emergency and Remedial Response

**TO:** Superfund National Program Policy Managers  
Regional Science and Technology Division Directors

**Purpose**

The purpose of this directive is to establish the Field Operations and Records Management System (FORMS II Lite™), the Office of Emergency and Remedial Response's (OERR) sample tracking software, as a mandatory system to use on Contract Laboratory Program (CLP) samples by January 1, 2003. FORMS II Lite™ will be phased into the Superfund program for non-CLP samples by October 1, 2003 as appropriate. Regional Science and Technology Division laboratories have the option of using FORMS II Lite™ for sampling conducted by the Region for any customer, although I am strongly encouraging its use. This Directive and Directive 9240.0-2C (Tracking Superfund Non-CLP Analytical Data) are companion documents. FORMS II Lite™ can also be used to fulfill the requirements for Directive 9240.0-2C.

The background and benefits of FORMS II Lite™, suggested contract language, exemptions from the requirement, and training opportunities are provided below. All ten Regions have received training at least once and are using FORMS II Lite™. FORMS II Lite™ has been used for over 50,000 Superfund samples, at the Hart Senate Building anthrax cleanup, and for the indoor air and dust sampling and analyses of Lower Manhattan associated with the World Trade Center collapse.

## **Background**

FORMS II Lite™ was developed to expedite sample documentation, to track samples from the field to the laboratory, and to reduce the most common documentation problems associated with sampling. Specifically, FORMS II Lite™:

- Generates and prints sample documentation (e.g., Traffic Reports/Chain-of-Custody, bottle labels, and sample tags) in the field;
- Provides a legible document for each of the recipients of the Traffic Report/Chain-of-Custody record;
- Eliminates manual transcription errors associated with the completion of sample documentation through the “enter once, use many” philosophy; and
- Facilitates the electronic capture of sample information into Laboratory Information Management Systems (LIMS) to automate the sample login process.

Since the implementation of FORMS II Lite™ the following benefits have been documented:

- FORMS II Lite™ saves up to 15 minutes of work per sample and it has the potential to save up to \$2 million per year if used on all Superfund samples (about 240,000 analyses per year).
  - As of September 30, 2002, FORMS II Lite™ was used at 62% of all the CLP samples (this is a 20% increase from the prior fiscal year). During October 2002, FORMS II Lite™ was used at 86% of all the CLP samples. During Fiscal Year 2001, the increased use of FORMS II Lite™ resulted in an average 48 percent reduction in paperwork discrepancies for all the Regions.
  - The reduction in paperwork discrepancies saves resources in tracking down samplers to discern the analytical work required, reduces the frequency of samples exceeding holding times, and allows samplers more time for sample collection rather than correcting or manually filling out paperwork.
  - Two of the top five sampling issues (from FY2000 to FY2001) have dropped off the top five list since the implementation of FORMS II Lite™. The issues reaching resolution are: samples listed on the Traffic Report/Chain of Custody but not received at the laboratory and samples not listed on the Traffic Report/Chain of Custody but received at the laboratory.
- 1 FORMS II Lite™ fulfills the Non-CLP Analytical Services Tracking System requirement. (See Directive 9240.0-2C)
- FORMS II Lite™ establishes progress towards meeting the goals of the Government Paper Elimination Act.

- FORMS II Lite™ helps meet the objective of OMB's Directive which requires EPA to focus on "reproducible and documented" data for decision-making.

Attachment 1 provides a summary of FORMS II Lite™ along with software and hardware requirements.

### **Suggested Language and Requirements for EPA Contracts, Interagency Agreements, and Cooperative Agreements**

Attachment 2 provides additional details and suggested language to modify EPA contracts and Interagency Agreements. Amendments to cooperative agreements with the States and Tribes may be required to address the FORMS II Lite™ requirement or to purchase equipment. Amendments to Interagency Agreements with federal facilities for EPA-lead sites may also be needed. The language is provided to establish national consistency in overseeing sampling activities. Each Region needs to amend its major assessment and response contracts (e.g., Remedial Action Contracts (RACs), Superfund Technical Assessment and Response Team (START)) that provide sampling services. In addition, regional modifications may be necessary to accommodate Region-specific needs. Contractors shall provide the equipment and software necessary to operate FORMS II Lite™.

Effective January 1, 2003, the contractors performing sample work for the CLP shall be required to use FORMS II Lite™ to manage sample collection, documentation, and submission of all relevant reports. The samplers shall also submit electronic Traffic Reports/Chain-of-Custody to the Sample Management Office (SMO) to automate the sample tracking process. Exceptions to the January 1, 2003 requirement should be rare (our goal is 95% Forms II Lite™ usage for the CLP) but can be waived by the Regional Sample Control Center Coordinator (RSCC) or another Regional designee who is most familiar with the sampling activities. The Region may also institute special procedures to handle situations when the use of FORMS II Lite™ is not practical. Headquarters does not need to approve individual waivers or the waiver process. Examples of acceptable waivers include small businesses conducting very limited sampling for one site such as at Brownfield sites, and substantial breakdown of equipment such as laptops, printers, or other related equipment. The RSCC should coordinate with the Project Officer and/or Contracting Officer if there is a trend in equipment problems or to address penalties for non-compliance, as appropriate. The Region will be responsible for determining alternative tracking procedures for sites that are waived from using FORMS II Lite™.

For non-CLP samples, the requirement is being phased-in by October 1, 2003. OERR is shifting many of its E-Commerce initiatives beyond the CLP and is developing web-based services that can also meet the needs of Emergency Response and Homeland Security. However, OERR also recognizes the Regional need for flexibility and recommends the Regions determine procedures for when the use of FORMS II Lite™ is not practical (e.g., emergency response). It is expected that the RACS and START contracts can be amended to require the use of FORMS II Lite™. Applicability of this requirement to other contracts (e.g., ERRS) may vary with the Region. In many cases, the same samplers are collecting samples for CLP and non-CLP analyses, and thus the contracts can be modified once for the two implementation dates.

States and Tribes accessing the CLP or using EPA services for non-CLP analyses should try to comply with the implementation dates as well. However, each Region should use their judgment on whether certain States and/or Tribes need special accommodations or an extension of the deadline. Potentially Responsible Parties have the option of using FORMS II Lite™, unless the samples (e.g., split samples) are being analyzed by EPA contractors.

### **Status of Software and Training**

FORMS II Lite™ software and training are offered at no cost to EPA personnel, EPA contractors conducting Superfund work, the States and Tribes. The software will continue to be upgraded to meet customer needs, for example, modifications are underway to accommodate Regional LIMS and web-based services. Samplers in all the Regions and some States have been trained by OERR and training requests will continue to be honored. Training has been conducted during actual sampling events to minimize work disturbance. Training is also provided via computer-based and web-based systems, a self-help web site, and the FORMS II Lite™ help desk. Training can be requested via the RSCCs or by directly contacting Willie Wong at 703-603-8846.

### **Next Steps**

Regional Contracting Officers and Project Officers will need to amend their assessment and response contracts to address the FORMS II Lite™ requirements. Site project managers need to ensure that sampling contractors use FORMS II Lite™. RSCCs or other appropriate staff overseeing sampling activities need to work closely with site managers to ensure sampling contractors are complying with the requirement. OERR will provide quarterly updates to the Regions on which samplers have been trained and are using FORMS II Lite™ for CLP samples. Willie Wong should be contacted to request software modifications.

Thank you for your cooperation in deploying FORMS II Lite™. Please contact Dana Tulis at 703-603-8993 for general policy issues including any concerns with the time frames and Willie Wong at 703-603-8846 for technical questions.

### **Attachments**

CC:

Field and Analytical Services Teaming Advisory Committee  
Superfund Senior Regional Management and Acquisition Council  
Regional Lab Directors  
Regional Quality Assurance Managers  
CLP Project Officers  
Regional Sample Control Center Coordinators  
RACs, START, ERRS Contract Officers/Project Officers  
OERR Senior Management Team